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UNIVERSAL MEDICAL SCIENCES

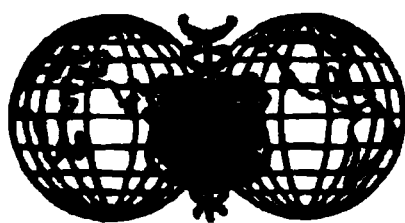
**A YEARLY REPORT OF THE PROGRESS OF THE GENERAL
SANITARY SCIENCES THROUGHOUT THE WORLD.**

EDITED BY
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AND
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DISEASES OF THE BRAIN.

BY LANDON CARTER GRAY, M.D.;
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NEW YORK.

LOCALIZATION.

Golz has finally succeeded in removing the whole cerebrum as far as the corpora quadrigemina, in the now celebrated dog Mikron. Edinger ¹⁰⁰⁶_{June} makes a report upon the significance of the experiment in a lecture before the Medical Congress at Wiesbaden. The animal lived eighteen months after the operation, and was subjected to repeated observations and tests as to the presence and integrity of motor and sensory functions. The most remarkable and conspicuous deficiency was the suppression of all expression of understanding, memory, reflection, and intelligence. The animal was profoundly imbecile. "In restless and unvarying round he ran his cage." With the exception of the gradual re-acquirement of the power to feed himself, he never learned anything. On the other hand, he was not paralyzed anywhere; he was everywhere sensitive to touch; there was a certain retention of muscular sense; he was not completely blind, although he could not correctly interpret what he saw; the sense of taste was preserved, and he felt hunger. Edinger's histological studies of sections made from the brain have not yet been published in full, but attention was directed in the lecture to grosser points which were of great interest. The only change observed in sections of the spinal cord was degeneration of the pyramidal tracts. Even in the medulla and quadrigemina sections no one would discover, without careful study, that farther forward so large an amount of brain-substance had been removed. A summary of the extent of the destruction due to the operation, as given by Edinger, is as follows: Of the entire cerebrum, aside from the remnants of the right Ammon's horn, there remained not a trace except a strongly-atrophied uncus of the parietal lobe, which was reduced to a mere membrane. The

incision on the right side passed laterad of the capsule, leaving the thalamus ganglia and opticus intact, while on the left side the geniculatum externum, optic nerve, the ganglion of the lattice layer, and a part of the ventral thalamus nidulus were also removed. The left optic nerve remained visible only in the form of a thread of non-medullated fibres. Of the ganglia of the mesencephalon, cerebellum, etc., all were intact.

The dog, although having his entire cerebrum removed, retained the greater part of those faculties which in man emanate essentially from the cerebrum. The deductions from this experiment are, however, applicable only to the dog and other lower animals, and not to man, in whom loss of the cerebral tissue to the same extent would unquestionably produce total abolition of all these faculties and almost certain death. The cortex is, as Edinger states, a centre superadded to the deeper ones, which is of greater importance the higher we ascend in the animal scale. The facts of comparative anatomy prove this, destruction of cerebral tissue producing only temporary loss or impairment of function in dogs a more permanent loss in monkeys, most decided in the anthropoid ape, while in man such loss is followed almost invariably by decided and persistent impairment in corresponding function, in proportion to the extent of destruction. Clinically and pathologically Edinger finds, in general paralysis of the insane, a condition in man analogous in effect with decerebration in the dog, the final result in both cases being deep imbecility; the symptoms progressing in severity in a ratio to the advancement of the lesion deeper and deeper into the cortex.

Berkely ¹⁰⁰⁸_{June} publishes the results of a series of histological investigations upon the cerebellar cortex of the dog. The results are quite at variance with the conclusions of Golgi, Cajal, and Kölliker, referred to in detail in previous editions of the ANNUAL, and there is no evidence in the text that the writer is conversant with the work done by these observers. Muratoff ⁸⁶⁸_{Sept. 23} finds, from experiments, that extirpation of motor centres is followed by degeneration of the corpus collosum in proportion to the area destroyed, and largest when extirpation is made of both sides of corresponding centres. He believes these observations to be of great importance as explaining secondary symptoms more rationally than by the theory of reflex action. The general morphology of the brain is

the subject of a paper by His, ¹⁰⁰⁶_{June} of interest to the student of comparative anatomy and cerebral topography. Herrick ¹⁰⁰⁶_{June} writes upon a similar subject, his paper being profusely illustrated with handsome photographic reproductions.

From histological investigations made upon the neuroglial elements of the brain, Golgi's method being used, Andriezen ²_{July '98} concludes that "in fundamental facts of structure, in their topographical distribution, in autogenesis, in their relationships to vascular and lymphatic systems and in the morbid changes they show, it would seem that there are ample grounds for supporting the classification of the neuroglial elements into protoplasmic cells and fibre-cells." The growing importance of these elements in brain pathology should stimulate the most extended investigation of their attributes.

Common Sensation.—Much material, both clinical and experimental, continues to accumulate in support of the theory of a close, if not an identical, relationship in motor and sensory areas in the cortex. Clinical and pathological facts are necessarily more valuable and trustworthy in this particular field than those evolved through experiment, by reason of the many familiar elements of uncertainty attendant upon the latter method, especially in animals. Among the more notable contributions to this field of investigation during the year are papers by Stacy Wilson, ²_{Sept. 23} Ransom, ⁴⁷_{Autumn and Winter, '98} Dana, ⁵⁹_{May 18} Mott, ²_{Sept. 23, '98} Savill, ⁴⁷_{Autumn and Winter, '98} Herrick, ¹⁰⁰⁶_{Dec., '98} and Albertoni and Brigatti. ⁵⁹¹_{v. 19, Jan. 1} The papers by Wilson and Mott were read before the section of anatomy and physiology of one of the London medical societies. Both writers reach the same conclusion,—Mott through experimental investigations upon animals, Wilson through a clinico-pathological study of eight cases. This conclusion is that the Rolandic areas of the brain are centres for sensation, as well as motion. Ransom and Dana write in advocacy of the same theory, each reporting results in an experimental study which was almost identical in subject, method, and results. In both cases the subject was an epileptic; in both the brain had been exposed through an opening made to relieve epilepsy, but which failed to cure it; in both cases identical needle electrodes were thrust through a cocainized dura to a depth of half an inch; and in both there resulted a subjective anæsthesia in the limb corresponding to the area experimented upon. The remark-

able identity of subject, technique, and results is most striking in that the idea seems to have occurred independently to each, although, in simple justice, it should be said that Ransom's paper was published several months before Dana's.

The same criticism,⁶ tersely expressed in an editorial comment on Dana's paper, to the effect that the subjective sensations of an epileptic, confessedly of weakened intellect, are not sufficiently reliable to justify any conclusions whatever, applies to both experiments. Herrick's paper gives the results of an experiment upon a cat, consisting of the removal of sections of the cortex of the left hemisphere in a long, narrow area, extending from the crucial sulcus to the limits of the middle external gyrus caudad, including nearly the whole of that gyrus. The results differed from those recorded by Munk in somewhat similar experiments, in that muscular sense was much more seriously impaired than either tactile or pain sensibility. The paper by Albertoni and Brigatti, chiefly clinical, contains the report of a case of epilepsy due to a tumor, which was removed from the mid-Rolandic area by operation. The epilepsy ceased, as a result, and the motor paralysis greatly improved, although quite a large portion of brain-substance was removed. Tactile, thermal, painful, and muscular sensations, however, which before the operation were intact, were afterward affected in an appreciable degree over the entire opposite half of the body. The case as reported seems remarkably free from elements of uncertainty and quite conclusive in its deductions. Savill still rejects the theory of a sensory function for the Rolandic cortex, recording another clinico-pathological example of "anæsthesia due to a lesion of the gyrus fornicatus," which, with the rest of the falciform lobe, he believes to be the sensory centre of the brain, following Ferrier, Horsley, and Shafer. The case cited by Savill is defective in the observations made during life as to the impairment of sensation, and much more than the gyrus fornicatus was involved in the lesion, which included all the adjacent sub-cortical tissue, from the lateral ventricle below to the marginal gyrus in front, and backward to the cuneus. It can readily be seen that the case possesses no conclusive value.

The anatomical course of the fibres conducting sensation through the pons-medulla region has been made the subject of further investigation by Moeli and Marinesco,³⁶⁸ Cavazzani,¹⁸

and Goldscheides.³⁰⁹_{v.17,p.102,78} The first-named writers conclude, from the clinical history and microscopical examination of prepared sections received post-mortem in a case observed by them, that the course of the bundles for pain sense lies in the ventral portion of the *formatio reticularis*, since this part was involved by the lesion and was symptomatically accompanied by diminished pain sense and paræsthesia of one side; whereas in other recorded cases, with the same parts involved, except the one just named in the pons, there was no disturbance of pain sense. Goldscheides had an opportunity, in the observation of a case of bulbar paralysis with subsequent histological examination of the diseased region, to investigate the muscular sense. He reaches the following conclusions: 1. The course of the fibres related to muscular sense is through that part of the medulla internal to the hypoglossus. A branch passes through the olivary body and restiform body to the cerebellum, enabling these parts to act as a lower co-ordinating centre. 2. A lesion of the middle portion of these fibres would destroy the muscle sense without other disturbance of sensation. A lesion of the olivary or restiform bodies might cause disturbances of co-ordination without disturbance of muscular sense.

Cavazzani records an interesting and valuable observation, illustrating the fact that different fibres exist in peripheral nerves for the conduction of different sensations, a fact often shown experimentally and symptomatically in certain diseases, but only rarely with such positiveness as in Cavazzani's case. The ulnar and median nerves were divided at the elbow by an injury. Nine months afterward the ends were re-united. Eight weeks later normal sensation had returned down to the wrist. In the hand temperature and muscular (pressure) sense were each markedly impaired, and in certain fingers, in very different degree, according as the fingers were supplied by the median or the ulnar nerve, leading the author to conclude that the ulnar nerve carried a less number of fibres for temperature sense, the median a larger number for pressure sense. There was also evidence of the disassociation of temperature sense, since in certain parts of the hand, particularly the end of the middle finger, only cold was felt, while sensation for heat and touch was totally lost.

In connection with Cavazzani's observations, appropriate

mention may be made of a paper by Weir Mitchell,⁸⁰ describing a rare phenomenon in a clinical example of crossed thermo-anæsthesia,—left side of face and right side of body. Tact and pain sense were both normal, as were also taste, smell, and hearing. The symptoms developed as a result of an apoplectic seizure. Mitchell was unable to find any record of a similar case. Bremer⁸⁶⁶ writes in support of the theory of a central or cerebral pruritus, dependent upon morbid nutritional changes in the cortex. He does not believe that the sensation of itching originates in the tactile corpuscles, although readily admitting that these bodies are the media of peripheral expression for the sensation. Certain analogies between itching and pain, touch and temperature sense, indicate a cerebral origin for all forms of peripheral sensorial impressions. He finds support for the theory in the pain of the hypochondriac and the hysterical, the itching of hypnotic suggestion, of neurasthenia and the itching aura in certain cases of epilepsy, etc. The article, as might be expected from the author, is well written; but it was a source of some surprise, in reading it, to find no reference to the classical paper of Bronson, written some three years ago, upon the same subject, though from the dermatologist's stand-point.

Bosc⁹² has collected the histories of twenty cases, illustrating that peculiar condition known as allochiria, to which he adds one of his own. Five are rejected as offering insufficient or inaccurate evidence. He distinguishes between a pseudo and a true allochiria, the former exhibiting rather a diminution than a deviation, due to an impairment of both sides of the afferent pathway (as in posterior sclerosis), leaving the brain in doubt as to which hemisphere is stimulated. These are the peripheral cases. The central cases, which are those of true allochiria, involve a profound lesion or complete unilateral destruction of the centripetal tracts. In the author's case, allochiria existed for every form of common sensation and for electric stimulation.

The Visual Centre.—Monakow³⁶⁸ presents further evidence in support of his view that the visual cortex extends some distance beyond the cuneus and adjacent regions on to the convex surface of the posterior parieto-occipital brain. This evidence is clinical and pathological, with carefully-studied secondary degenerative conditions in the ganglia related to the visual cortex. Three

cases are recorded which may be summarized as follows: Case 1, male, 67 years old. Repeated attacks of ophthalmic migraine. Apoplexy with subsequent bilateral left-sided hemianopsia. Negative ophthalmoscopic examination. Death seven years later. Autopsy showed focus of softening in the right cuneus. Old and well-marked secondary degeneration in right optic radiation, right pulvinar, corpus geniculatum externum, anterior corpus quadrigeminus and right optic tract, right fornix, and right corpus mammillares, or, in other words, complete and almost isolated degeneration of the entire central visual apparatus. The primary lesion was quite a deep one, involving the peduncle of the cuneus. The associated cortex region was degenerated in a peculiar way: The cuneus, lobulus lingualis, and first occipital gyrus were fully and distinctly sclerosed. The second and third occipital and first and second parietal were also degenerated, but in less degree. The author considers the degeneration of the primary and cortical centres as proportionately related, and assumes, therefore, a function related to vision in all the cortical area found degenerated, which, as can readily be seen, is much more extensive than that given by Munk, Seguin, and others. Case 2, female, aged 16 at death. Infantile convulsions. At 1½ years, acute cerebral disease, resulting in deaf-mutism and slight idiocy. No examination of field of vision. Death from pneumonia. Autopsy: Old and extensive hydrocephalic enlargement of left posterior and inferior cornua on left side and atrophy of occipito-temporal lobe. Secondary degeneration of the optic radiations, the left posterior corpus quadrigeminus, both corpus geniculatum internum and externum and optic tract. Only the ventral group of cells in the corpus geniculatum externum were degenerated, the dorsal group being intact,—a fact which was significant in view of Monakow's previous investigations, which showed that only the ventral group of cells degenerates after lesions of the cortex. Case 3, male, 62 at death. Apoplexy followed by transient right hemiparesis, with permanent, but incomplete, right-sided hemianopsia alexia and paraphasia. Autopsy showed softening in the left angular gyrus and præcuneus (left cuneus not involved), caused by thrombosis of the posterior branch of the left Sylvian artery. There was secondary degeneration in the dorsal portion of the left optic radiation, in the left corpus geniculatum externum and optic thalamus, and in the

anterior corpus quadrigeminus. There was also slight atrophy of the left optic tract. The cuneus and lobulus lingualis were normal, and the fibres from them to the primary centres were not degenerated. The reduction in the visual field was quite decided, however, in spite of the fact that the chief visual area was free from degeneration. The evidence adduced is apparently strongly confirmatory of the author's views, but the fact that the lesions in all cases were deep-seated and involved quite extensively the subcortical white fibres must leave some element of doubt as to the significance and relationship of both the symptoms and the secondary degeneration, at least in the first two cases. Case 3 is apparently impregnable. The paper possesses great value and interest, and is worthy of careful study.

Seppilli²⁴_{Feb. 12} reports three cases of bilateral blindness due to destructive lesions of the occipital lobes, quite extensive in character. In one case the blindness quickly followed an apoplectic seizure without motor or sensory phenomena. In two cases in which ophthalmoscopic examination was made the result was negative,—a fact possessing value when such negative results occur in association with persistent pupillary reflexes, in the differentiation of hysteria. Henschen,⁴⁷_{Spring and Summer} in a paper read before the London Congress of Experimental Physiology, summarizes his views upon the visual path and centres as follows: The clinico-anatomical method is the only reliable one of studying this field. Pathological data involving facts as to centripetal and centrifugal degeneration are of accessory value and great importance, but subservient, negative pathological data are quite as important as positive. In studying the visual path, Henschen emphasizes the great importance of recognizing two sets of fibres, visual and optic, “a lesion of the forus producing a defect in the visual field alone, whilst the latter are to be considered as reflex fibres.” The external geniculate body, the anterior corpora quadrigemina and the pulvinar, all receive fibres from the optic tracts, but Henschen does not believe that any clinical proof exists that in man any *visual* fibres ought to be, or are, contained in the pulvinar or corpora quadrigemina. The external geniculate body he considers the main sight ganglia in man, destruction of which will always produce some form of hemianopsia. The centre for vision he locates in the cortex of the middle part of the calcarine fissure (cuneus). He discusses the

views held by Munk and Reinhardt (lateral surface of occipital lobe), Ferrier (occipito-angular region), Nothnagel (first occipital gyrus), Seguin (mesial surface cuneus), and the French school (occipito-temporal and occipito-parietal regions). Monakow's conclusions are also mentioned, but the author considers them unacceptable and not supported in many points by corroborative evidence. Henschen's well-known writings and studies in this field give considerable weight to his opinion.

The Auditory Centre.—Seppilli ⁸⁸_{Apr.} has made a clinico-pathological study of affections of the temporal lobes, the results of which he publishes in a paper containing much instructive matter. The conclusions of Flechsig, Bechterew, Monakow, and Zacher, as to the relations of the auditory centre to the posterior tubercles of the corpora quadrigemina, through the internal geniculate bodies, are reviewed, and much of the clinical literature of the subject is carefully analyzed. The author's conclusions are in accord with accepted teachings to the effect that "word-deafness in right-handed people is caused by lesions of the left temporal lobe; but that in left-handed people it does not occur from lesions of the left, but of the right temporal lobe." Clinical examples, with necropsies observed by the writer, are cited as confirmatory of this conclusion, from both a positive and a negative stand-point.

APHASIA.

Several additional installments ⁸⁸_{Feb. to Sept.} of Wyllie's excellent monograph upon the "Disorders of Speech" have appeared within the year. The paper next in sequence to the last one mentioned in the ANNUAL for 1893 deals with speech in its relations to insanity. The author outlines three propositions as forming the basis of this paper: "(1) to make the mind the first stand-point, and to give illustrations of the faithful manner in which disorder of the mind is mirrored in the speech of the patient; (2) to treat of speech-hallucinations and other disorders of action that are met with in insanity, in connection with disturbances of the cortical speech-centres; (3) to treat separately of the affections of speech in dementia, showing how, in such cases, the decay of speech is slower than thought, and how, in some of them, the disease of the mental cortex spreads downward into those cells of the cortex that form the executive motor centres for articulation, thus causing

the appearance of an ominous paralytic element in articulation that is of the greatest significance both diagnostically and prognostically." With reference to the first proposition, illustrative examples of the degree to which the mental condition is mirrored in the speech of melancholia, mania, and so-called moral insanity are cited. The second proposition is considered from the standpoint of the cerebral centres of speech as operated upon by the diseased mind, and includes observations and comments upon perverted action in the motor, word-writing, word-hearing, and word-seeing centres for speech, manifested in the various related hallucinations. The author follows closely the observations in this field of Seglas, to whom he acknowledges his indebtedness, especially in connection with the latter's interesting description of psychomotor hallucinations of speech. Among the disorders of action in speech in the insane which are mentioned and discussed are echolalia, onomatomania, logorrhœa and modylalia, embololalia, peculiarities in written language and perversions of a grammatical character in the formation of sentences. The next three papers deal with the subject of aphasia proper, with a physiological preface, and notes upon the leading features and upon the history and literature of the subject. These three papers constitute the most interesting of the series. They cannot be summarized with justice in review, and should be closely studied, especially the paper dealing with the mental percepts of objects and of words and the union of words, with their meaning. The original hypothesis of Broca, as modified subsequently by Moxon, Broadbent, Gowers, and Ferrier, as to the explanation for the fact that we speak with the left brain, is accepted and elaborated by the writer. The third of this series bears upon the phenomena of co-ordination and its disturbances, manifested in stammering, stuttering, etc., with observations upon the depth of imprintation of speech memories in the speech-centres and overflow of speech education into the corresponding convolutions of the opposite hemisphere. This paper also contains a full bibliography, with comments. Amnesia verbalis and paraphasia are next considered, and the subject is further divided into articulative amnesia and articulative ataxia (asynergia verbalis). Separate consideration is given other forms of loss of the memories of signs (asemia) that are related to aphasia, and sometimes found associated with it, such as loss of the memory of

graphic symbols in music, in figures and algebraic signs, in gestures (amimia and paramimia), and object-blindness. The last half of this paper contains an anatomico-physiological introduction to the subject of aphasia dependent upon organic disease of the brain, with illustrations diagrammatically representing the relationship of the various speech-centres. The author adopts the schematic diagram of Lichtheim. Bastian²²_{May 17, 24} exhibited six patients illustrating various forms and degrees of aphasia, and his lecture reflects the well-known opinions of this distinguished teacher in this field. A paper entitled "Some Cases of Aphasia, with Remarks," is published by Reynolds.⁹⁰_{May}

Motor Aphasia and Agraphia.—An interesting example of partial motor and amnesic aphasia, manifesting itself in a loss of names, both proper and common, is reported by Laplace.²⁴²_{Mar.} The patient, a young woman aged 19 years, was shot, the bullet entering the skull between the eyes, at the apex of the glabella, producing unconsciousness which continued for three weeks. The wound healed without any special trouble, though the bullet remained in the cranial cavity. The only symptoms resulting were: intense pain, referred to the left occipital region; the aphasia and a rather curious perversion of special-sense impressions constituting a sort of allochiria, affecting smell, hearing, and common sensation. For example, when asked if she heard a tuning-fork, she replied, "Yes, I see it." When given an article and asked whether she has it, she answers, "Yes, I see it." She also "sees" the sensation of smell, and, in fact, all impressions are referred to the centres of apparent vision. There was no word-blindness, word-deafness, or agraphia, and her judgment and general mental condition seemed to be perfectly clear. She could speak distinctly any short sentence not involving the use of a noun, such as "I do not know," "I cannot tell you," "That is not so," "That is wrong," etc. The occurrence of aphasia in which there is a loss of the use of nouns only is a phenomenon not infrequently observed, but in most recorded cases the loss has involved only proper nouns, indicating a superficial lesion in that the memories least deeply imprinted are most easily obliterated. Clinical histories of examples of motor aphasia are published by West,¹⁰⁷⁷_{July 12} Thomas,²³⁹_{Nov., '92} and Beevor.²_{Apr. 1} No points of special interest attach to either of the three cases. An interesting discussion occurred recently at a meeting of the Société

de Biologie of Paris, upon the significance of motor agraphia, considered in its relations to certain areas of the brain. Charcot and Dutil inaugurated the discussion with a paper recording the case of a woman, who, at the age of 44 years, had an attack of right hemiplegia involving the tongue. She lost the ability to write spontaneously and from dictation, but could copy. There was no word-deafness or word-blindness. When 55, a second attack of hemiplegia occurred, this time of the left side, with complete loss of speech. A third and fourth attack occurred six years later, and death eight years afterward, at the age of 69. At the necropsy areas of softening were found, in the left hemisphere, (1) at the posterior extremity of the second frontal and (2) in the middle portion of the second frontal; on the right side, (3) at the anterior extremity of the third frontal and posterior portion of the third frontal, extending into the ascending frontal (4) at the foot of the ascending frontal and parietal, and (5) in the posterior portion of the ascending parietal. Two additional areas of softening were found at the base of the right hemisphere, but these, with No. 3, were supposed to have given rise to no symptoms. Nos. 2 and 4 caused symptoms of bulbar paralysis, No. 5 the left hemiparesis, while No. 1, the lesion at the posterior portion of the second left frontal, was considered responsible for the peculiar form of agraphia. In the discussion, Déjerine stated that, while he did not doubt the clinical and anatomical facts given, yet he did not think that this, or other similar cases reported, proved that the centre for written language lay in the second left frontal. He thought it very difficult to isolate and localize a pure motor agraphia. Against the hypothetical existence of a centre for writing was the fact that one could write with the feet as well as with the hands, although it can be conceived that a higher motor centre for writing may exist, connected with the lower centres for the hand and foot, either of which may govern the peripheral mechanism of writing. The same type of agraphia had accompanied motor aphasia, as in this case, in cases in which the lesion was of Broca's convolution.

Auditory Aphasia.—Wyllie's last paper⁸⁸_{Sept.} is devoted to a consideration of this type of aphasia. He summarizes his conclusions as follows:—

“1. It is rarer than motor aphasia. 2. It is more easily

curable. 3. It interferes with both the reception and the production of audible speech, its leading symptoms being, on the reception side, word-deafness, and, on the production side, amnesia verbalis, paraphasia, and articulative amnesia. 4. It interferes with the repetition or echoing of spoken words. Though the words are heard by the uneducated auditory centre, their auditory images are at first not well retained, and the patient has, therefore, at first difficulty in getting the educated motor centre to conform to these imperfect auditory images of the opposite side; but, with practice, this difficulty generally disappears. 5. As to written or printed speech, we have seen that there is difference of opinion upon the question whether or not the power of reading is retained; but it has been shown that it is retained, in some cases at least. As to writing, we have seen that the motor act of writing is not interfered with, the handwriting being often good. Nor, apparently, is the power of copying words in writing interfered with. But when the patient tries to express his thoughts in writing he exhibits faults of expression and faults in spelling equivalent to the faults of his spoken speech, this paraphasia being, in fact, only a translation of the paraphasia in the patient's internal speech. And these faults of written speech are often even more marked than are those of spoken speech."

Bleuler,⁷⁵ ⁸⁶⁵_{No. 19, 98, June} agrees with Freud that subcortical word-deafness probably arises through incomplete bilateral lesion of the acoustic field, though possibly under the influence of peripheral disturbances of hearing. Acoustic word-pictures he considers as quite probably transmitted through the same fibres which transmit other qualities of sound. He concludes (1) that word-deafness does not necessarily depend upon a central lesion; (2) that a general derangement of hearing can suppress the acoustic comprehension of words without any considerable alteration in the perception of other qualities of sound.

A case of deaf-mutism, in an adult, found at the autopsy to have been due to symmetrical lesions in the two temporal lobes, is recorded by Seppilli.⁹⁸ The entire cranial capacity was less than normal, the brain weighing 935 grammes (30 ounces), and the left hemisphere was almost one-fourth smaller by weight than the right. The first and second temporal convolutions were destroyed, normal being replaced by cicatricial tissue, while the third

convolutions—the supra-marginal and the angular gyri—were atrophied and sclerosed. The convolutions of the island of Reil were intact on the right, but largely destroyed on the left; acoustic nerves very thin. The patient presented notable deficiency of intellect, with absolute deafness and dumbness. She possessed a certain amount of intelligence, however, and could comprehend, to a certain degree, mimetic language. No motor paralysis of trunk or limbs existed, nor was there any defect present in vision or cutaneous sensibility. In the same paper Seppilli reports a case of lesion of the left temporal lobe without word-deafness in a left-handed man. Scarano⁹⁹⁶_{June 10} records a case, of related interest and possessing negative value, of lesion of the first, second, and third *right* temporal lobes, destroying them, the patient showing during life no word-deafness. He has found in literature reports of a large number of similar cases, two cases of lesions of the left temporal lobes without word-deafness, but in left-handed persons, and thirty cases in which this symptom was present from lesions of the left temporal lobes in right-handed persons. Fraser²¹³_{Feb.} describes an instructive example of auditory aphasia, with paraphasia, the autopsy showing a localized lesion involving, with atrophy, the posterior part of the superior temporo-sphenoidal convolution and the posterior part of the inferior parietal lobule. No other lesion was found. The same writer describes an example of auditory amnesic aphasia, probably organic, though not indicating the existence of any gross defect. Giampietro⁸⁷_{Mar.} suggests the term *idio-phonique* for Charcot's *surdité verbale*, for the reason that patients so affected can hear words, but do not understand them.

Alexia.—A case designated one of “pure word-blindness” is described by Häishölt,¹⁴⁷_{Sept.} occurring in a Frenchman 63 years old, a musician by profession, and, for several years, director of an orchestra in San Francisco. He was admitted to the Stockton Hospital for the Insane on account of certain delusions of persecution. On admission, he was found to be free from any evidence of organic or functional motor disease or of sensory disturbance, except as to vision, and, to a slight degree, hearing. The ophthalmoscope showed left homonymous hemianopsia. He would sometimes ask the attendant to give him his other shoe, saying he could only see the right one, when both were before him. His speech was normal in articulation, he could hear and understand all that

was said to him, he could spell verbally and write well to dictation, but he could not read what he had written, not even his own name. He also showed absolute visual amusia or note-blindness, being unable to read correctly a single note on the staff, though he could play from memory the most difficult music, with elaborate variations, with absolute correctness. He explained his inability to read as being due to a failure of his eyesight, requiring only suitable glasses. To humor him, dozens of glasses were tried, but, of course, without improvement. He died some eight months after admission, from a purulent cystitis. At the necropsy, the brain, in its anterior aspect, appeared normal, but the occipital

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Fig. 3.

LEFT HEMISPHERE, SHADED PORTION SHOWING AREA OF SOFTENING. (HÅISHÖLT.)

A, gyrus supra-marginalis; B, gyrus angularis, C, gyrus occipitalis, med.; D, gyrus occipitalis, sup.; E, gyrus occipitalis, inf.; F R., fissure of Rolando, F. S., fissure of Sylvius.

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lobes on both sides showed extensive disease. The left occipital lobe was the seat of the older lesion, the whole lobe appearing of a yellowish-green color, sunken in appearance and the convolutions narrowed, the change in color and contour extending forward and upward into the angular and supra-marginal gyri, and inward along the median surface of the occipital lobe, the tip of which was quite softened. The posterior surface of the right hemisphere was of a yellowish-red color, and presented several hæmorrhagic spots, indicating a more recent and active disease process.

The case is of interest and value, as confirming the accepted teachings of Wernicke as to the area representing speech, vision,

and also the subdivision made by him into the two types of cortical and subcortical alexia. Déjerine and Vialet⁹²⁷_{No. 26, p. 770} report a well-studied example of pure word-blindness for both letters and words and musical signs, with retained ability to read figures and to calculate. There was no word-deafness and no difficulty in articulation, nor was there any impairment of motor power or sensation. The symptoms remained for four years without material change, when a sudden seizure occurred, resulting in death. For two days before death there were paraphasia and agraphia, resulting from the last seizure, which was found at the autopsy to have involved the left inferior parietal convolution and angular gyrus. Old yellowish areas of softening, with atrophy, were found in the lingual and fusiform lobules, the cuneus and the apex of the occipital lobe, with secondary degeneration in the splenium of the corpus callosum and pronounced atrophy in the optic radiations. The right hemisphere was intact. Histological examination showed that the lesion was least pronounced at the level of the lower lip of the calcarine fissure, and was especially localized in the fusiform and lingual lobules. The tapetum, the radiations of Gratiolet, and the inferior longitudinal fasciculus of Burdach were entirely destroyed. All of the structures in the descending branch of the calcarine fissure were involved in the softening. The authors conclude from the facts in this case, and physiological considerations, that the lower portion of the inferior longitudinal fasciculus of Burdach contains fibres that connect the visual centre with the centre for language. It is to be regretted that the involvement of vision proper was not studied with equal care in this case, as the location of the lesion was such as to have necessarily produced decided disturbance.

Amusia.—Two most interesting contributions to our knowledge in this sub-field of aphasia appear in papers by Blocq⁸⁶⁸_{Vol. 25} and Brazier.²⁴_{Jan. 1} Blocq credits Knoblauch with having first recognized amusia as an isolated pathological condition in 1888, and he concedes the importance of Wallaschek's studies in this field, especially the recognition of the different varieties of amusia and their classification into motor, sensory, and paramusia, with musical agraphia, musical alexia, and musical amimia. Blocq follows the same classification, and his paper contains descriptions of several illustrative cases. Brazier's paper is chiefly of interest from a

clinical stand-point, though it possesses much additional interest scientifically and on account of the extensive references to the literature of the subject. The author describes two cases coming under his own observation, one of tone-deafness (*amusie sensorielle auditive* of Blocq and Onanoff), the other of note-blindness (*cécité notale, amusie visuelle, cécité musicale*).

Hysterical Aphasia.—Corydphytes, of Athens, ⁷⁸_{Oct. 1, '92} reports the case of a boy, of neurotic heredity, who for twenty months did not talk, refusing at the same time to walk or eat any food, except ice-cream. He was cured by "force suggestion," hypnosis having failed. Alston ⁶_{Apr. 3} describes a case of absolute aphæmia in a man with no other defect, which persisted for several weeks, when the patient's speech was suddenly restored. In a test to determine if malingering were present, the patient spoke volubly, under the influence of an anæsthetic. Other cases of hysterical defects of speech are recorded by G. Hammond ¹_{Dec. 10, '92} and Cleveland. ⁷²_{June}

Stammering and Stuttering.—Altuszewski ⁵⁵¹_{Nov. 21, 22, '92} reviews the literature of the subject, contrasting especially the opposite theories of Caen and Gutzmann in a paper which is well written and includes some valuable suggestions as to treatment. Sohon ⁸¹_{May} discusses the subject in a paper written largely from the laryngologist's stand-point. Hadden, ¹⁰⁷⁷_{Feb. 22} in a clinical lecture upon defective articulation, exhibited several patients affected with speech abnormalities corresponding to the condition described by Hale White and Golding Bird as idioglossia, a term which Hadden accepts under protest.

BRAIN-TUMORS.

Hydatid Cysts of the Brain.—Herbert Barclay ⁵⁵⁷_{Oct. '92} relates the case of a patient whose only symptoms of cerebral disease were headache (occurring occasionally), vomiting attacks, and a sensation of intra-cranial pressure and gradual dimness of vision, death occurring suddenly in coma, the autopsy showing an hydatid cyst, about as large as a pigeon's egg, extra-cerebral, and at the base pressing upon and partly obliterating the infundibulum and corpora albicantia. The case emphasizes the truth of Graham's statement that hydatid cysts of large size are often present without symptomatic evidences. On the other hand, a case in which symptoms were present which were clearly diagnostic of the disease is reported by Chisholm. ²⁶⁷_{Feb. 15} The patient, a boy 6 years

old, suffered from constant agonizing headaches, followed by vomiting of the cerebral type and periods of profound somnolence, lasting at times two or three days. Later he developed blindness, with atrophy of both discs, transient right hemiparesis, thickness of speech, mental dullness; the pain in the head became localized at about the parieto-frontal junction, and this portion of the skull was found to be quite tender on pressure, and to bulge conspicuously. He had been in the habit of drinking water from a creek accessible to a lot of dogs. Taken together, these facts justified the diagnosis of hydatid cyst, which was subsequently confirmed by operation. The cavity, after the withdrawal of $19\frac{1}{2}$ ounces (300 grammes) of fluid, measured downward and backward four and a half inches; vertically downward, four inches; and toward the frontal region, three inches. Quite an unusual feature of the case, from a surgical stand-point, was the failure of the cyst-wall to collapse. The boy died twenty-two hours after the operation. Characteristic hooklets were found in the fluids.

Chopt⁷_{Oct., '72} reports a case of hydatid cyst of the meninges, with paralysis and Jacksonian epilepsy on the opposite side. Roth²¹⁴_{Sept. 18} exhibited a specimen obtained from Kappeler, being the brain of a butcher who died at the age of 53 years, having shown symptoms of cerebral tumor for a year, the specimen containing multilocular echinococcus cysts. The author states that this is the first instance of multilocular echinococcus of the brain recorded.

Tumors of the Cortex.—Walton⁹⁹_{July '97} relates the history of a case in which a correct diagnosis of tumor, located in the occipital cortex, was based upon the presence of loss of vision in the left half of the retinae of both eyes (hemianopsia), with visual hallucinations of color (red). Other symptoms present were intense headache, vomiting, word-blindness and occasional word-deafness, and paralysis of the sixth nerve, the last symptom supposed to have been due to general pressure. An operation was done, but the tumor was found to be too large and diffuse for removal. The patient's condition was much improved, however, the sixth-nerve paralysis disappearing entirely. Death occurred two months after the operation. The autopsy showed the tumor occupying a position at the junction of the occipito-temporal convolutions (angular gyrus), and extending almost to the mesial surface of the brain, cutting off the fibres radiating to the occipital lobe.

A somewhat similar case of equal, if not greater, interest is reported by Bull. ¹_{Oct. 3, '92}. A male patient, 37 years old, who had contracted syphilis twelve years previously, began to suffer from headaches in the left parieto-occipital regions, and to notice a gradual loss of vision in the right half of each field. Soon afterward he suddenly lost completely the sense of smell. At the time of consultation he had noticed a failure of vision in the remaining portion of the field in the left eye. The perimeter showed a bilateral right hemianopia, with some concentric limitation of the remaining half of each field. The fundus showed beginning atrophy of the discs. Under iodide of potassium in large doses, the patient grew steadily worse, becoming stupid, losing his memory, and finally sinking into coma and death. There was never any hemiplegia or anæsthesia, and no symptoms of motor disturbance until two weeks before death, when epileptiform twitchings of the muscles of the face and the hands occurred. The autopsy demonstrated the correctness of the diagnosis of neoplasm, located in the cuneus near the base of the occipital lobe of the left side. It was not a gumma, however, as had been supposed, but a small-celled sarcoma, about the size of a large olive. The olfactory lobes were atrophied, and the olfactory nerves reduced to mere threads. No other lesion was found. Several interesting cases of tumor located in the motor cortex are recorded. Sommer, ³⁸⁵_{v. 12, p. 22; Sept. 9}, ⁶ for example, relates the case of a man, 42 years old, who, after suffering from severe headache for three months, had an attack of paresis of the right arm which passed off in a few days. Six months later he still complained of headaches and a sense of pressure in the right parietal region, and presented as symptoms weakness of the lower right face, difficulty of speech, inability to write to dictation or spontaneously, though he could copy; with double optic neuritis. A diagnosis of tumor, located in the lower left ascending frontal convolution, was made and an operation done. A tumor, growing from the dura mater, was found and removed; but the patient survived the operation only three days, death resulting, in the author's opinion, from the too sudden removal of the compressing mass. He suggests that in such cases it would, perhaps, be better to remove the tumors gradually and in segments. Laveran ¹⁴_{May 28} reports a case of gliosarcoma destroying the inferior part of the ascending frontal and parietal convolutions of the right hemisphere. The symptoms

—left facial paralysis and tremulous weakness of the left arm, without speech-involvement—were in exact accord with the accepted views as to the functions of the parts involved. A third case of tumor involving the facial centre is reported by Pfanneustiel.⁶⁸ The patient was a boy, admitted to the hospital for tubercular ulcers of the skin and paresis of the lower left facial muscles. Autopsy showed the facial paralysis to have been caused by a tubercular tumor the size of a pea, in the under part of the posterior central gyrus of the right side. It involved only the cortex. The bordering part of the anterior central gyrus, which represents the chief centre for the lower and middle facial branches, was only slightly compressed.

Harris⁹⁰ records a case with an imperfect history, in which symptoms of slowly developing hemiplegia, beginning in the arm, headache, vomiting, double optic neuritis, and blindness were found, at the autopsy, to have been due to a very large tumor (three and a half inches by three and a half inches in surface area) arising from the inner dura and passing into the right fronto-parietal region to a depth of two inches. Microscopically, the growth was an angiolithic sarcoma.

Stieglitz and Gerster,⁵ report a case of tumor of the cortex, with operation, which possesses several features of interest. The patient, a young married woman, while in apparent good health, was suddenly affected with a twitching of the thumb and forefinger of the right hand, which, a few moments later, developed into a general convulsion. Several similar attacks occurred during the next few months, though, after the first six or eight seizures, the spasms were limited to the right hand and did not become general. Five months later paresis of the right hand and lower arm developed, the Jacksonian epilepsy continuing. She did not complain of headache or vomiting; there were no mental symptoms, and repeated examinations failed to show any changes in the fundus. A diagnosis was made of tumor of the cortex, located in the left anterior central convolution, at the junction of the lower and middle thirds. An operation was done by Gerster, who found at this point a cyst, which was evacuated. The patient recovered from the operation, but the arm remained paralyzed and the epilepsy continued, indicating a continued irritation, either in the products of surgical inflammatory change or a recurrence of the

original disease process. A somewhat similar result was obtained through operation in a case of tumor of the brain reported by Diller and Buchanan,⁵ though the growth was subcortical. Symptoms of Jacksonian epilepsy in the right arm and face, gradually developing hemiplegia, beginning in the face, some aphasia of a mixed type, though chiefly motor, and evidences of a beginning optic neuritis, with headaches and vertigo, constituted the basis for a diagnosis of tumor, located in the lower ascending frontal convolution. At the lowest point in the brain exposed by an opening over this region a sharp probe punctured a cyst-cavity, giving exit to a clear fluid. It lay at a depth of about half an inch. The wound healed without any untoward symptoms, and the patient showed a decided and continuous improvement in his symptoms, though the epileptic attacks persisted. A remarkable case of brain tolerance to surgical manipulation is recorded by Bramann²²⁶ v. 46, No. 2 in a case of brain-tumor, located in the cortex of the ascending frontal and parietal convolutions, no less than three separate operations having been done, the last one giving results which were "eminently satisfactory." The symptoms were hemiplegia of gradual onset, with Jacksonian spasm, headache, defective hearing and vision on the affected side and choked discs. At the third operation considerable brain-substance around the growth (myxosarcoma) was removed. The same author successfully operated on another patient presenting somewhat similar symptoms,—left facial paralysis, paresis of left arm and, to a less degree, of left leg, diminished vision on the right, choked discs, and a single Jacksonian spasm affecting the paralyzed side. A surgical landmark in an œdematous swelling on the right side of the head assisted in locating the point for operation. A tumor, sarcomatous in character and weighing 280 grammes (9 ounces), was removed, and after a tedious convalescence the patient recovered, regaining considerable power in the limbs, while the choked discs disappeared entirely.

Délagénère²⁹¹ reports the successful removal of an angiolithic sarcoma of the dura mater after trephining, the patient making a good recovery. Three cases of brain-tumor operated upon by McBurney form the basis of a joint paper by McBurney and Starr.⁵ The tumor in one case was of the right frontal lobe, encapsulated, sarcomatous in character, and correctly localized

during life. Death occurred from shock and hæmorrhage eight hours after the operation. In the other two cases the tumor was in the cerebellum, both correctly localized, but in neither of these cases was the tumor found at the operation. One patient survived the operation five, the other six, days. These two cases bring the total number of operations for cerebellar tumors, according to Starr's statistics, up to thirteen, in only one of which was the tumor successfully removed. Another case of failure from operation is recorded by Duncan,²¹³_{Aug.} whose patient was operated upon by Macewen for a tumor of the Rolandic region. No attempt was made to remove the growth in this case, as it was too large and deep-seated. A case which appears to have been, from the history, quite favorable for operation is reported by Bury.²_{Mar. 25} A man 41 years old began to suffer from dimness of vision and headaches three months after a severe blow on the head. Later he developed a paresis of the left arm, followed by a weakness of the left leg, which became a complete hemiplegia toward the end, with double optic neuritis and mental dullness. The headaches were distinctly localized on the right side. A vascular sarcomatous tumor was found at the post-mortem occupying the first right frontal convolution. No reason is given as to why operation was not attempted. Other clinical papers upon tumors of the cortex are by Eustace and Parsons,¹⁶_{May} Simpson,⁶_{Mar.} Jackson,²³⁵_{May 15} and Madden.²⁴²_{Feb.} The case of Eustace and Parsons was one of dural hæmatoma, with symptoms of general paresis, but unilateral Jacksonian convulsions preceded the paretic symptoms several years. Simpson's patient had, among other symptoms, absolute right and partial left-sided deafness, the tumor occupying the temporo-sphenoidal lobe (it is not stated whether right or left hemisphere, but presumably on the left). Madden's case is of special interest in connection with the sensory symptoms present. There was loss of tactile pain and muscular sense, the last most marked, the tumor involving the posterior central, the superior parietal, the supra-Sylvian, and the anterior portions of the angular and occipital convolutions.

Tumors of the Frontal Lobes.—It is an interesting and significant fact that a large proportion of the cases of tumor in this region reported annually occur in the inmates of institutions for the insane. Two cases of this character are reported this year,

—one by Gannett, ⁹⁹_{Dec. 1, '92} the other by Mosher. ²⁷⁸_{Oct. '92} In both patients the mental symptom-picture was that of dementia, and in Gannett's case no motor or sensory symptoms were present at all, the tumor in this case being extra-dural and of meningeal origin, compressing greatly, but not destroying, the frontal lobe of the right side. Mosher's patient, in addition to the dementia, presented weakness of the limbs and difficulty in walking, with paralysis of sphincters and bulimia. The tumor in this case occupied the tip of the left frontal lobe, which it had excavated. Both tumors were sarcomatous. In neither case was the diagnosis made during life. Another case of tumor of the frontal lobes which was not diagnosed during life is reported by Sweeny. ¹⁰⁵_{Feb. 15} The symptoms were: ataxic gait, somnolence, mental hebetude, incontinence of bladder and rectum, slight ptosis of right side, slight flattening of right labial fold, with bilateral twitching of the extremities. The tumor, a sarcoma of the dura, lay underneath the left frontal lobe, extending back as far as the upper pons.

Tumors of the Corpus Striatum.—A case possessing interest in its bearings upon recent physiological research as to the thermogenetic functions of the corpus striatum is reported by Ransom. ⁶_{July 1} The case was that of a man, 47 years old, who, about ten weeks before his death, having previously been in good health, began to suffer from headaches, somnolence, and apathy, followed by delusions, failure of memory, muscular weakness without paralysis or anæsthesia, double optic neuritis, vomiting attacks, and finally coma, resulting in death, the temperature being subnormal throughout until just before death, when it rose to 100.6° F. (38.1° C.). At the autopsy a tumor was found to have replaced the right caudate nucleus. Microscopical examination showed it to be a myxogliosarcoma. The rest of the brain was normal. Cowan, ⁶_{Dec. 31, '92} on the other hand, found transient hyperpyrexia in association with repeated convulsions, in a case of glioma of the corpus striatum, chiefly affecting the lenticular nucleus. The temperature ranged as high as 109° F. (42.7° C.), though this was noted only during the status epilepticus, which appeared a few days before death. The case cannot therefore be said to be at all conclusive as to any special thermogenetic function related to the corpus striatum. Other points of interest in the case appear in a history of melancholic symptoms and unilateral convul-

sions, with absence of vomiting and optic neuritis throughout, and motor paralysis of limbs only two months before death, although other symptoms of tumor were present nearly three years. Martin-Durr⁷_{Nov. 2, '92} describes a case of sarcoma of the left centrum ovale involving the corpus striatum, in which marked secondary contracture and atrophy followed the hemiplegia.

Tumor of the Optic Thalamus.—Wharton Sinkler¹_{Aug. 19} presented before the American Neurological Association a specimen from a case of tumor in this region. The symptoms were not such as to permit a positive diagnosis during life as to the location. The phenomena observed in the onset were quite suggestive of hysteria. The symptoms were: somnolence and hebetude, aphasia (slight), paresis of right face, and awkwardness of the right hand, unsteady gait, anæsthesia of the right side of face, but not of the leg or arm, exaggerated knee-jerks, and subnormal temperature. No nystagmus, convulsions, hemianopsia, or change in the fundus, and no athetoid symptoms except the slight inco-ordination of the right hand. The optic thalamus was found to be the seat of a new growth (probably fibroma) as large as a hen's egg, which encroached upon the corpus striatum and the posterior part of the internal capsule.

Tumor of the Quadrigeminal Bodies.—P. Tissier⁹⁹⁶_{Mar. 25} observed a case of tumor in this locality. The patient, a man 21 years old at death, suffered for nine years from intermittent cephalalgia, epileptic crises, and difficulty in locomotion. Some months before death he presented symptoms of Jacksonian epilepsy, left hemiplegia, mydriasis, diminution of vision, achromatopsia, and narrowing of the visual field, especially on the right. At the necropsy there was found a glioma the diameter of a franc, in line with the right anterior quadrigeminal body, with softening in the inferior plane of the right cerebral peduncle. Absence of motor symptoms connected with the eyeball and of ataxia was explained by the integrity of the posterior quadrigeminal bodies.

Tumor of the Cerebral Peduncle.—A tumor in this locality gave rise, in a patient observed by Blocq and Marinesco,⁷³_{June} to symptoms which were, during life, identical in every respect with those observed in paralysis agitans,—a unilateral tremor with rigidity, etc. The tumor, as large as an olive, was found quite unexpectedly, at the autopsy, in the right cerebral peduncle (left-sided

tremor). It occupied the situation, to a large extent, of the locus niger, though it did not involve the foot of the peduncle, the fibres of the third nerve, or the cerebellar peduncle. There was no ascending or descending degeneration. The tremor was attributed to irritation of the pyramidal tracts. Similar cases have been reported by Charcot, Mendel, and Benedikt. The tumor was tubercular in character.

Tumor of the Pituitary Body.—The point of special interest in connection with tumors of this body is its association, through disease, with the condition known as acromegaly. From a study of this disease, based upon cases observed by others and cases coming under his own observation, Marie reached the conclusion, in a paper published some four years ago, that disease of the pituitary body was one of the constant lesions in acromegaly. Dana²⁴²_{Nov.} finds statistical proof of this statement in the fact that in nine out of a total of eleven autopsies in acromegaly some disease of the pituitary body was found. The converse of this proposition does not seem to be true, however, for in three cases of tumor of this body reported during the year acromegaly is not mentioned, and in two of these cases it is specifically stated to have been absent. These three cases were reported by Wills,⁴⁷_{Autumn, Winter, '92} Handford,⁴⁷_{Autumn, Winter, '92} and Waddell.⁶_{Apr. '92} In no case were the symptoms such as to permit a correct diagnosis, except as to tumor somewhere in the intra-cranial cavity in Wills's case. Handford's patient showed paralysis of the optic motor oculi and facial nerves, with late hemiplegia, loss of taste, and defects of speech. In Waddell's case the symptoms were: headache, bitemporal hemianopsia, double strabismus, right hemiplegia, with mental stupidity. Wills's patient was an inmate of an insane asylum, with symptoms of dementia, ataxic gait, and optic atrophy in both discs, with almost absolute blindness in the left eye. Osborne⁵_{June, '92} relates the symptoms in a case of acromegaly which he thinks indicated the presence of intra-cranial tumor involving the pituitary body; but as these symptoms can be easily explained on other grounds in the absence of an autopsy, his conclusions must remain entirely conjectural.

Tumors of the Pons.—Marks³⁶⁴_{Aug. 16} presented before the St. Louis Medical Society a specimen illustrating tumor of the pons. The patient, a colored man 24 years old, was struck on the head on

December 25, 1892, after which he suffered from incessant headaches. Two months later his right arm, and then his right leg, became paralyzed. He also presented left-sided anæsthesia, left facial paralysis with trophic ulceration of left cornea. He died less than five months after receipt of injury, and at the autopsy a firm, circumscribed tumor, about the size of a large marble, was found, near the upper and anterior part of the pons, in the median line. No histological examination was made. A case of tumor of the pons, with somewhat anomalous symptoms, is recorded by Ransom. ⁶_{July 1}. A boy 10 years old developed gradually a right hemiplegia, with right facial paralysis, complete in all branches, and loss of taste. There were some weakness, also, of the left leg, an ataxic gait, slight internal strabismus in both eyes, and slow nystagmus in the right eye, and slight double optic neuritis. Tactile and pain sensation was everywhere normal. The tumor, a very extensive glioma, was found at the necropsy extending through the whole breadth of the pons, but more bulky in the right half. The right lobe of the cerebellum was involved, also. A case of carcinoma of the pons, the autopsy showing cancerous nodules in the liver and the cervical region, in a patient whose father died of cancer, is reported by Anderson. ²¹³_{Aug.} The symptoms were: headache, characterized by nocturnal exacerbations; paralysis of the fifth, sixth, and seventh nerves and part of the third, followed by sudden unconsciousness, coma, and death. Jackson ²⁸⁵_{May 16} correctly diagnosed during life a tumor occupying the left side of the pons at its posterior part. The symptoms, four months in duration, were first photophobia and diplopia, followed some weeks later by headaches, left internal strabismus, and alternate hemiplegia. Autopsy confirmed the diagnosis. Hektoen ⁶¹_{Feb. 11} also records a case of tumor of the pons sarcomatous in character.

A case of gliosarcoma of the pons, possessing special interest from the presence of marked and constant priapism and masturbation as symptoms, is recorded by Slee. ¹⁵⁷_{Mar.} Other symptoms present were semi-comatose stupidity, external strabismus, rotation of head to the right, anæsthesia of right conjunctiva, dilatation of right pupil, and incontinence of urine. The patient died three days after admission to the hospital. At the necropsy there appeared on the right side of the upper medulla, involving also the pons and adjacent cerebrum and cerebellum, a small cuboidal tumor

extending deeply into and through the structures. The literature of priapism as a result of intra-cranial disease is quoted by the author, and the case is cited as affording confirmatory evidence of the existence of a vaso-dilator erection centre in the medulla. Mansel Simpson⁶ reports the history, with autopsy, of a case of paralysis of the left third, fourth, fifth, sixth, and seventh nerves, with headaches, optic neuritis, and vomiting, dependent upon a caseating tumor of the left side of the pons about the size of a small filbert.

Tumors of the Base.—Two very interesting cases of malignant growths invading the cranial bones at the base of the brain,

FIG. 1.—PARALYSIS OF ALL THE CRANIAL NERVES ON THE RIGHT SIDE EXCEPT THE FIRST, TOGETHER WITH THE MOTOR DIVISION OF THE FIFTH AND THE SEVENTH NERVES ON THE LEFT SIDE. (CHARLTON BASTIAN.)
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and involving structurally and by pressure several cranial nerves, are reported by Charlton Bastian.² Both occurred in males of about the same age, with good personal and family histories, and in neither could trauma be established. In the first case the patient presented paralysis of all the cranial nerves on the right side except the first, with involvement also of the motor division of the fifth and the seventh nerves on the left. (See Fig. 1.) The tumor was a squamous epithelioma involving the bones very extensively at the base, the history indicating its origin to have been in the right sphenoidal sinus, extending thence into the occipital and temporal bones. In the second patient all the cranial nerves, from the seventh to the twelfth, inclusive, and on both sides, were

involved. At the necropsy a sarcomatous growth was found projecting from the basilar process of the occipital bone, extending upward to the middle of the body of the sphenoid, downward as far as the foramen magnum, and laterally on the right and left to about the junction of the temporal with the sphenoidal and occipital bones. The pons was much flattened, especially on the right. The accuracy and care with which observations were made and recorded in these two cases is worthy of special commendatory mention. Bastian emphasizes the importance, as an indication

FIG. 2.—MORE OR LESS COMPLETE PARALYSIS OF THE SEVENTH TO THE TWELFTH CRANIAL NERVES (INCLUSIVE) ON BOTH SIDES. (CHARLTON BASTIAN.)

(From a photograph which shows well the double facial palsy, and more obscurely the wasting of the right sterno-mastoid and trapezius.)

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of the absence of intra-cerebral tumor proper in these cases, of the absence of vomiting, of optic neuritis, of limb paralysis, and convulsions. Additional diagnostic information is present in a negative history of syphilis or trauma, and often in the presence of some growth or enlargement in the pharynx. An endothelioma of the dura mater located at the base in the left middle cerebral fossa was found post-mortem by Lishman¹⁰⁶ in a demented patient who died in an insane asylum.

Cerebellar Tumors.—Dercum¹ discusses the pathogenesis of blindness, with optic neuritis and deafness in cerebellar tumor,

and other lesions. Involvement by proximity and pressure of the quadrigeminal bodies is the explanation most acceptable to the writer for both the blindness and the deafness. Pizzini⁹⁸⁷_{v.44,p.212} exhibited a tumor of the cerebellum occupying the whole of the left hemisphere and part of the vermis, which did not reveal its presence by any signs indicating functions usually attributed to the cerebellum; occipito-frontal headache and vertigo were the only symptoms observed up to a period immediately preceding death. A case of extensive cerebellar tumor in which ataxia was conspicuous by its absence is related by Calantoni.⁵⁸⁷_{v.15,p.121} The tumor, a gliosarcoma, occupied the left cerebellar hemisphere, and had also destroyed half of the bulb, but did not affect the vermis. Parker²¹³_{Mar.} reports a case of sudden death occurring in a young woman whose only symptoms had been paroxysmal headaches and slight vertigo, with occasional transient ataxia following over-exercise, as in dancing, the autopsy showing a cyst, as large as a Tangerine orange, lying between the cerebellar hemispheres. A case of a tumor occupying the right lobe of the cerebellum, in which, with symptoms which were quite characteristic, there were also recurring rigors and an elevated temperature, is reported by Smith.³⁶⁴_{May 16} The association of typhoid fever with tumor of the cerebellum led to much confusion in the diagnosis in a case described by Ransom.⁶_{July 1} No symptoms indicating intra-cranial disease had been observed previous to the onset of typhoid fever, but quite soon afterward optic neuritis, strabismus, and loss of knee-jerks made evident the presence of cerebral disease other than that usually accompanying typhoid. The tumor, an inch and a half in diameter, was of the pia and pressed deeply into the right lobe of the cerebellum and somewhat into the pons; characteristic lesions of typhoid were found in the intestines. C. S. Bull,¹_{Oct. 2, '92} in a contribution to the subject of intra-cranial lesions with defects in the visual fields, reports, among other cases, one of gliosarcoma of the right lobe of the cerebellum of probable traumatic origin. The symptoms were sufficiently characteristic to admit of a correct diagnosis during life. An interesting point in the etiology was that, while the blow supposed to have caused the growth was received on the left side of the head, the tumor was on the right side. Hektoen,⁸¹_{Feb. 11} also records a tumor of the cerebellum, gliosarcomatous in character and secondary to trauma.

Other clinical papers upon tumors of the cerebellum are by McAdam,¹⁷⁰_{July} Prince,²_{Nov. 19, '92} and Handford,⁴⁷_{Autumn, Winter, '92} the last of whom makes a clinical example of sarcoma of the middle lobe of cerebellum a text for interesting theories as to the physiology of the knee-jerks, lost in his patient's case through the cutting off of cerebellar influence by the growth. McAdam's case presented symptoms which rendered the diagnosis comparatively easy during life; tumor was cystic in character. Prince's case was also cystic, and the symptom-picture was decidedly lacking in characteristic features. With reference to Handford's observation as to the absence of the knee-jerks, it is interesting to note that in most of the cases reported a similar observation was made. Cadiot and Roger,¹⁴_{June 14} report a case of tumor in a dog, destroying the right lobe of the cerebellum, encroaching also upon the peduncles, but not affecting the vermis, the symptoms having enabled them to make a diagnosis during life. The dog walked with a "drunkard's gait," seeking support. The authors remark that this case shows that involvement of the vermis is not necessary to produce incoordination.

PARALYSIS.

Infantile Cerebral Paralysis.—Taylor,⁶_{Sept. 23} in a lecture upon varieties of paralysis met with in children, describes two types, ordinary congenital hemiplegia and congenital spastic paraplegia. As these two conditions are closely related and often identical in etiology and pathology, the difference depending only at times upon the location of the lesion, it seems questionable if any advantage exists in the elaborate distinction of the two. Another statement of the author's, to the effect that athetosis is present in a very large proportion of infantile hemiplegias, is open to criticism in that the condition is relatively rare. Oliver,²_{Apr. 11} in a paper entitled "Central Birth Palsies," relates, with comments, the histories of three examples of this condition, one of which came to autopsy and was found to depend upon multiple hæmorrhages. The other two cases were of atrophic hemiplegia and spastic paraplegia respectively. Fisher,¹_{Aug. 19} reports a case of congenital hemiplegia with atrophy, epilepsy, and imbecility, in which a necropsy showed marked atrophy of the cerebral hemisphere opposite the paralysis. Microscopically the cortical cells were found diminished in number, but those present were of normal size. Clinical lectures upon this

subject published during the year are by Brower⁷⁷⁹_{May} and Clark.¹⁰⁷⁷_{Feb.22} Other papers are by Brunon,²⁰³_{Mar.1} Saquet,¹²⁷_{Mar.12} and Seifert,⁷⁵_{Feb.15} the last of whom records two cases of hemiplegia following diphtheria in two girls aged respectively 10 and 9 years. In the first case the hemiplegia developed suddenly, but without convulsions, eleven days after the diphtheria began, and three days after convalescence had become established. For a day or two preceding the paralysis in this case symptoms indicating myocarditis appeared, and this is supposed to have induced cerebral embolism through cardiac thrombosis. The hemiplegia was of the right side, and there was motor aphasia which persisted for six months. The second case developed sudden loss of consciousness without convulsions, followed by right hemiplegia and motor aphasia, twenty-one days after an attack of diphtheria which had been complicated with nephritis, the symptoms indicating central hæmorrhage.

Hemiplegia.—Boinet⁹²_{Dec.10,78} denies the statement of Bright, Sée, and others that uræmic paralysis does not exist, recording a case of this character observed by him in which five separate attacks of hemiplegia occurred, the final condition of the patient at the time of the report being one of satisfactory health. In two attacks the paralysis followed unilateral convulsions of the Jacksonian type. Amnesic aphasia and partial hemianæsthesia followed one attack. The case is strikingly similar to one recorded by the editor in the ANNUAL for 1893. (See article, "Epilepsy," v. ii, page A-52.) The author thinks that some of these cases are to be explained by cerebral œdema, others by uræmic toxæmia. Jacobsen³⁷³_{p.126} contributes an article upon hemiplegia in old people, in which autopsy shows no lesion. He reviews the facts in thirty-two cases gathered from the literature, to which he adds six of his own, observed in the general hospital at Copenhagen. In four of these the age was over 70. Most of the thirty-eight cases were in persons over 60, and usually atheromatous arteries were present. The author advances an hypothesis of unequal blood-supply and pressure. Several interesting papers upon clinical phenomena, associated with and following hemiplegia, appear in the neurological literature of the year. Weir Mitchell⁹_{Apr.22} makes some interesting observations upon pre- and post-hemiplegic pain, post-hemiplegic joint-affectations and post-hemiplegic nodes. The pain, he is inclined to believe, is of central origin, and the joint-affectations and

nodes due to nutritive disturbances through altered nerve-function. Darkschewitsch, ³⁶⁸_{v.21,p.184} writing upon somewhat similar phenomena following hemiplegia, in atrophy with arthropathy, gives the results of observations in nine such cases. Atrophy, he finds, occurs often quite early and to a marked degree, not necessarily in proportion to the severity or extent of the lesion. The atrophy is simple, not degenerative, the electrical changes being only quantitative. It progresses from centre toward periphery, and not by group-muscles. Atrophy and arthropathies co-exist or may appear alone, or the arthropathies may influence the development of atrophy. The atrophy, however, is usually attributable to the influence of an altered cortex upon the muscles through the anterior-horn ganglion cells; occasionally vasomotor disturbances arising directly from the apoplexy may act in causing muscle and joint changes.

Guizzetti ⁵⁰¹_{v.19,p.17} also believes in the implication of the anterior-horn cells in the production of post-hemiplegic atrophy. He does not reject the theory of a central cerebral trophic centre, but if such centre exist it should act through the medium of the anterior gray horns. He reports a case in which the atrophy was *ascending* and *degenerative* and precocious in onset. An interesting and somewhat rare phenomenon in association with hemiplegia, germane to the question of a cerebral trophic centre, was observed by Matignon, ⁷⁰_{Nov.2,72} in the presence of numerous furuncles, which appeared in a case of temporary hemiplegia, limited to the same side as the paralysis and occurring simultaneously with it. Faure ²¹²_{June 10} has written a thesis upon the phenomena observed on the sound side in hemiplegia. Those especially studied are contracture, exaggeration of the reflexes, epileptoid trepidation, arterial tension, and sensation. The hypothesis of reflex action seems to him the most plausible explanation. Scurr ³³⁹_{Mar.} reports a clinical example of hemiplegia due to syphilis cured by moderately large doses of iodide of potassium, about 300 grains (19.50 grammes) daily.

Bulbar Paralysis.—Hughlings-Jackson and Taylor ⁶_{Dec.10,70} relate, with interesting details, a case presenting many symptoms characteristic of bulbar paralysis, in which the lesion was bilateral, and of the hemispheres, the pons-medulla region showing entire absence of disease in the nuclei. The diagnosis was made *intra vitam*,

and confirmed by necropsy. The paper contains a fairly full bibliography. Another somewhat similar case of pseudo-bulbar paralysis due to a lesion in each hemisphere is reported by Newton Pitt.²_{May 20} The patient had an attack of right hemiplegia in December, followed by a partial left hemiplegia in February, after which he was quite unable to voluntarily move the muscles of the face, lips, tongue, larynx, or pharynx. All the reflexes were preserved, however; there was no muscular wasting or fibrillary twitching, and the electrical conditions were normal. Upon these negative points, with the history of two separate attacks of hemiplegia of sudden onset, nuclear disease of the bulb was excluded. Under the title "Subacute Unilateral Bulbar Palsy" Wiener¹_{Feb. 25} describes a case of complete unilateral paralysis of the tongue, soft palate, larynx, and pharynx, on the right, together with paralysis of the sterno-cleido-mastoid and upper trapezius, which occurred in a patient affected with tubercular cervical adenitis. Atrophy of the tongue and electrical changes were present. The lesion was presumably tubercular. Jacoby¹_{Feb. 25} gives the history of a case of complete atrophy of the tongue associated with nuclear paralysis of several cranial nerves.

Hysterical Paralysis.—A most interesting case of paralysis of this type is recorded by Glynn.¹⁸⁷_{July} The patient was a man 61 years old, of good family and personal history. His temperament is said to have been normal up to within two years of his attack, when he experienced a profound shock from the tragic death of his wife and daughter in a fire which totally destroyed his house and all his personal property. After this he became low-spirited, his memory failed, he lost energy, and his sleep was often poor and disturbed by dreams. His attack of paralysis followed two days of fruitless search for employment, with scarcely any food. It occurred suddenly, the onset simulating quite closely the symptom-picture in cerebral apoplexy. Three hours later, when examined by Glynn, he presented complete left hemiplegia with involvement of the entire left face and inability to close the eye. There was also absolute loss of tactile, muscular, and temperature sense on the left. He was quite deaf and partially aphasic. The tongue was drawn to the left. The knee-jerk was absent on the left. It was noticed, however, that while the patient could not voluntarily close the left eye, automatic blinking movements occurred, and both eyes

were closed during sleep. The tongue, too, when pricked, moved spontaneously to the right. The left facial muscles were affected with a constant spasmodic twitch. Examination of the eyes showed marked concentric limitation of the visual fields, color-blindness for red and almost for green, no hemiopia, and no changes in pupillary reflexes or extrinsic muscles. The sense of taste was absent on the left side of the tongue, and there was anosmia also on the left. The diagnosis of hysteria, the result of fatigue, exhaustion from hunger, and moral emotion, was confirmed by the results

FIG. 1

FIG. 2.

FIG. 3.

HYSTERICAL PARALYSIS. (GLYNN)

Fig. 1, taken during an attempt to close the eyes; Fig 2, taken to exhibit the deviation of the tongue, the deformity was much more marked at an earlier period. Fig 3, taken during the act of swallowing fluid, showing the increase of spasm of the muscles of the left side of the face and of the anterior part of the platysma, also the partial closure of the left eye from the spasm of the orbicularis.

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of treatment, the patient making a full recovery in less than a week with electricity and massage. (See illustrations.)

Sarles²⁰²_{July 10} reports a case of hysterical hemiplegia in a young girl which, in its almost exact resemblance to organic disease, presented great difficulty in diagnosis.

Kinnosuke Miura²¹_{May} relates the histories of three cases of hysterical brachial monoplegia which were under Charcot's care in *la Salpêtrière*. All were males, and in all trauma played a rôle in the etiology. One was affected with lead poisoning, while another presented symptoms of disseminated sclerosis. The paper is full of interest and contains an exhaustive bibliography.

König ⁷⁵_{June 1, 1875}, ²_{July 1, 1878; Dec. 24, 1878} has been studying the phenomena dependent upon involvement of the facial and hypoglossal nerves in functional hemiplegia. His conclusions are as follow :—

1. Pure functional facial, or facio-hypoglossal, paresis uncomplicated with spasticity is rare.

2. Paresis in those territories, combined with spastic conditions of various muscles, chiefly on the opposite side, is less infrequent. The presence of spasm must raise suspicion against the organic nature of the paresis.

3. Charcot's teaching that hysterical facial paresis is distinguished by its slight intensity and the accompanying sensory disturbances is substantiated.

4. In glossolabial hemispasm it may happen that the tongue does not deviate to the side of the spasm; the inability to move the tongue midward from the deviation-point is a more important indication of glossal spasm than abnormal position of the tongue when extended, or when lying within the oral cavity, or than the peculiar spontaneous movements of the organ.

5. The appearance of spasms, especially during the voluntary movements, in the neck- and shoulder- muscles of the non-paralyzed side may, perhaps, be estimated as in favor of the hemiplegia being functional.

Miscellaneous Paralysis.—Angel Money ²⁶⁷_{Feb. 16} observed a case of crossed paralysis present in association with other symptoms which pointed quite strongly to a lesion of the middle lobe of the cerebellum. There was a history of syphilis, and under the iodide very marked improvement occurred. The case was probably one of leptomeningitis of the base. Pitres ²⁵_{Jan.} describes a case of left crural monoplegia occurring in a painter, and found at the autopsy, six years later, to have been dependent upon a small lesion (focus of softening) in the front segment of the right internal capsule, one centimetre anterior to the genu, close to the commencement of the corona radiata. Menz ⁶_{Aug. 19} reports a case of hemiplegia, with associated paralysis of both third nerves, occurring simultaneously, and attributed to a lesion of the left crus crossing the middle line.

CEREBRAL LESIONS.

Hæmorrhage, Embolism, and Thrombosis.—Schutz ⁸⁸_{v. 17, p. 618} writes upon glycosuria as a sympathetic condition in cerebral hæmor-

rhage, recording a case of this character which he observed. Few such observations are recorded in the literature of the subject. Sugar in the urine in apoplectic cases is suggestive, with reference to localization, of affections of the fourth ventricle and the pons. Bamberger,⁵⁷_{June 11} in a paper upon hæmorrhage in the centrum ovale, says that the symptoms may vary extraordinarily in hæmorrhage at this point, resembling most closely those from subcortical hæmorrhage. The prognosis he considers better than in hæmorrhage into the internal capsule. The Jacksonian spasms, often present in these cases, are misleading in that they may suggest trephining on the supposition that the lesion is of the cortex.

"Cerebral Hæmorrhage in Childhood" is the title of a paper by Mayfield⁸¹_{June}; and "The Apoplectic Pulse and its Treatment," of a paper by Dana.⁴⁶²_{Aug.} Collins¹⁰⁵⁸_{July} writes upon the dietetic treatment of patients threatened with cerebral hæmorrhage. A case of cerebellar hæmorrhage occurring in a boy, apparently the result of trauma, is reported by Bashing.³²_{Oct., '92}

Other papers upon the subject of hæmorrhage are by Hougberg,⁹⁹⁶_{June 21} Coats,²¹³_{Nov., '92} and Mills.¹¹⁹_{May 16} The literature of embolism is exceedingly meagre and uninteresting. Purser¹⁶_{July} exhibited, at a meeting of the Academy of Medicine of Ireland, a specimen illustrating thrombosis of the veins of Galen, which occurred as a complication in an attack of facial erysipelas. There was no thrombosis of the veins of the convexity or of the longitudinal sinus. Goodsell²²²_{Jan.} relates the history of a patient who, six months after a severe head injury, having meantime remained well, began to suffer from pains in and above the left eye. In a few days ptosis and diplopia, with mydriasis, occurred, and vomiting attacks began. She showed temporary improvement under treatment, but the symptoms all returned in an aggravated form and the patient died. Vision was not affected, and the temperature showed no elevation throughout. At the necropsy complete obstruction by a large thrombus in the posterior communicating artery near the apex of the petrous portion of the temporal bone was found as the cause of symptoms. By a periarteritis the third and fourth cranial nerves which lie contiguous to the artery were incrustated in the walls of this body, and it also pressed upon the ophthalmic division on the fifth nerve. The diagnosis was not made during life, for reasons easily apparent.

Bücklers ³⁶⁸_{R. 26, H. 1} reports "two cases of thrombosis of the cerebral sinuses without diagnostic symptoms." The first occurred in a pregnant woman, 32 years old, brought to the hospital unconscious, with conjugate deviation to the right and left hemiplegia with exaggerated reflexes. Later, left-sided ptosis and left facial paralysis, with paroxysmal tremors of the entire body, appeared, the patient passing from coma into death. Necropsy showed thrombosis of the superior longitudinal, the cavernous, both petrosal and the transverse sinuses, with thrombosis also of superior cerebral veins, the veins of Galen, and numerous cerebellar veins. The cause could not be ascertained, unless it was due to chlorosis in the gravid state. The second case occurred in a young girl, who presented marked chlorosis. The symptoms begin with sudden chill and headache, followed by unconsciousness. Afterward she showed right-sided ptosis, general ataxia, stiffness of the neck, paralysis of both arms and left leg, right-sided divergent strabismus, dying in coma on the seventeenth day. The autopsy showed thrombosis of the longitudinal, rectus, and transverse sinuses and centres of softening in both hemispheres.

Leon d'Astros ⁴⁶_{May 16}, ¹⁵¹_{July} publishes a very interesting summary of his conclusions in a study of cerebellar softening from embolism, thrombosis, atheroma, etc., as follows: The lesion is rare because of the infrequency of either thrombosis or embolism, and on account of the rich vascular anastomosis on the surface. There are two varieties: 1. Small softenings in the centre of the organ. 2. Large softenings occupying an entire lobe or its upper or lower half. The small areas of central softening result from obliterations which form beyond the surface anastomoses in the arterioles which penetrate into the surface of the organ. The large softenings require diverse conditions for their production. Obliteration of one vessel is rarely followed by softening. The obliteration of several vessels simultaneously is often required. Lesions of the vertebral, basilar, and posterior cerebral arteries are apt to be followed by cerebellar softening, though the symptoms in such cases are apt to be referred to the bulb, pons, or peduncles.

In a valuable study of the thrombi and hyaline globules which have been quite frequently noted in the vessels of the brain in acute infectious diseases, Manasse ²⁰_{v. 120, p. 217}, ⁴⁵¹_{May} reaches the conclusions that (1) in the acute infectious diseases there may be constantly

found, in the vessels of the brain, hyaline balls and thrombi; (2) these are formed during life, and are most probably a product of the white blood-cells.

Cerebral Compression.—Papers reflecting studies, chiefly experimental, upon the phenomena of cerebral compression are by Deucher,⁸⁰¹_{B. 36, p. 146; Feb.} Dean,¹¹²_{Feb.} Van Stockum,¹_{Apr. 29} and Banerjee.²⁸⁹_{Apr. 18} No facts of special value are demonstrated. Banerjee's paper, which is clinical, bears upon the value of large doses of potassium iodide in relieving states of cerebral compression.

Traumatic Lesions.—Phelps¹_{Jan. 14, 28} contributes an exhaustive clinico-pathological study of lesions of the brain-substance from trauma, which includes much interesting material, based upon 124 cases observed by him. These cases included fracture at the base and vertex, lacerations of the brain, thrombosis of the sinuses, contusion (general and meningeal), traumatic arachnitis, concussion and compression, and *contre-coup*. The symptomatology, diagnosis, prognosis, and treatment are reviewed elaborately and with commendable clearness. Of these 124 cases, 49, or nearly 40 per cent., ended in recovery. The fractures at the base numbered 70, of which 21 recovered, or exactly 30 per cent. Death was caused, in the majority of fatal cases, by laceration and attendant hæmorrhage.

Norbury,⁶⁶³_{Dec. '92} in a paper entitled "Wounds of the Brain and Their Results," reviews the subject principally from the standpoint of the alienist, basing his paper upon cases of cerebral traumatism occurring in 2600 cases of insanity. Somers¹⁴⁷_{Mar.} writes, from the police-surgeon's stand-point, upon the difficulties of diagnosis in head injuries. Clinical papers, reporting cases illustrative of the extent to which the brain may be injured without permanent impairment of function, are by Ryan,²_{Mar. 4} whose patient lived for two years with a revolver-bullet in the occipital lobe, no symptoms having appeared within this time to indicate its presence; and Hutchinson,⁸⁰⁶_{July} whose patient was shot, the ball entering the skull about an inch above the right ear, remaining in the cranial cavity, the only symptom being a temporary hemiplegia. Other clinical papers upon cerebral traumatism are by Hardy,²³⁹_{Jan.} Monroe,²¹³_{Mar.} Berry,¹³⁸_{Feb.} Marsh,³²_{Jan.} Smart,⁶_{Sept. 9} McLaren,²_{July 29} Wilkes,⁶_{Dec. 24, '92} and Steiner,⁶⁷³_{Jan.} the last of whom reports a case of lesion of several cranial nerves of chemico-traumatic origin.

Encephalitis.—Goodall, ²²_{Oct. 5, '92}; ²_{Oct. 22, '92} gives the results of experimental studies in the pathological anatomy of acute encephalitis, in a paper read before the British Medical Association. His investigations were made almost exclusively with reference, to the significance of Deiter's cells, better known, perhaps, pathologically, by Bevan Lewis's designation of spider- or scavenger- cells. He finds these cells to occur normally, the effect of inflammatory conditions being to increase them in size and not in numbers. This proliferation occurs earliest in those regions in which the cells are most conspicuous in health (subcortical), next in those between the cortex and pia, then in the outermost cortical layer, and lastly in the depths of the cortex itself. The participation of leucocytes in the production of spider-cells was not demonstrated, though it could not be denied. The spider-cells seemed to be the products of fixed connective-tissue elements.

Dreschfeld ²_{July 22} describes a case presenting symptoms of complete ophthalmoplegia externa with associated symptoms of bulbar paralysis, without sensory disturbance, but with atrophy of some of the muscles affected, in which the autopsy showed macroscopically and microscopically absolutely nothing to explain the symptoms. The term "polioencephalomyelitis" (Seeligmüller) is used by the author to describe the case, and the literature of similar cases is quoted in support of such diagnosis. The objection of Hardman, ²_{Aug. 19}, that the term involves an inflammatory affection when no evidence of such a condition exists, is only one of many objections which might be urged.

Under the term "diffuse encephalitis" Knaggs and Brown ⁴⁷_{Spring} describe the symptoms and post-mortem findings in a case which clinically and pathologically corresponds to an ordinary porencephaly in most respects. Crocq ¹⁷_{Oct. 20, '92} reports a case of acute encephalitis with recovery. Leeches and calomel, followed by iodide of potassium, constituted the treatment. Three cases of septic hæmorrhagic encephalitis occurring in children of the same family, apparently complicating influenza, are reported by Baginsky. ²²_{Dec. 26, '92} Two of the three cases had ended fatally at the time of the report, and in both only streptococci were found bacteriologically. In all three cases there was pneumonia. There can scarcely be any doubt as to the infectious origin of such cases, —a view first suggested by Strümpell. Such is the conclusion of

Bücklers, ³⁶⁸_{v.14, No.2, 1888} who reports four cases with autopsy. The course of the disease, Bücklers finds, varies considerably, some cases running a very acute course, while others are quite protracted, giving rise to marked variations in the pathological findings. The pons, the cerebellum, and the bulb were invariably free. The diagnosis is often quite difficult, especially in excluding brain-abscess, cerebro-spinal meningitis, and thrombosis of the sinuses. The prognosis is not absolutely bad, as some of the protracted cases may recover.

Patru ¹⁸⁷_{Sept. 20} gives an abstract of nine cases of acute hæmorrhagic encephalitis from the literature of the subject, to which he adds a case observed personally in a woman during the puerperal period. The post-mortem showed a general septic hæmorrhagic encephalitis, with thrombosis of the veins of the pia.

Lesions of the Cerebral Peduncle.—Charcot ⁸¹_{Mar.} presented a man at the Salpêtrière with the following symptoms, to which he gave the name *le syndrome de Benedikt*: Diplopia, left ptosis, tremor followed by paresis of right hand and transient paresis of right leg, all occurring suddenly and in quick succession. The author compared the condition with the syndrome of Weber and that of Gubler-Millard, and located the trouble in the case presented in the left cerebral peduncle involving part of the pyramidal bundle and left motor oculi. A similar case is reported by Sciamana ¹⁴_{July 12} under the same name, occurring in a young girl and probably due to a tubercular tumor.

Lesions of the Pons.—Starr ⁵⁹_{Feb. 11} records a case of alternate hemianalgesia attributed to a lesion of the pons. This case, taken in conjunction with the facts in twenty-six similar cases collected by the writer, justifies the assumption that it is possible to arrive at a very exact diagnosis in lesions of the pons. They also constitute a legitimate basis for the following conclusions:—

“1. If in any case anæsthesia of one side of the face occurs (not due to neuritis of the trigeminus or to cortical lesion), the lesion lies in the medulla or pons, in the outer third of the *formatio reticularis*. Its position in this part is to be determined by the other symptoms present; for, if it is situated high up (cephalad) in the pons, it will be on the side opposite to the anæsthesia, and if it is situated low down (caudad) in the pons or in the medulla, it will be on the same side as the anæsthesia.

" 2. If in any case anæsthesia of the limbs occurs (not due to cerebral lesion), the lesion lies in the medulla or pons, in the inner two-thirds of the formatio reticularis, and upon the side opposite to the anæsthesia; or in the spinal cord.

" 3. If one side of the face and the limbs of the opposite side are anæsthetic, the lesion affects the entire lateral extent of the formatio reticularis, and lies in the medulla, or in the pons, below the point of union of the ascending and descending roots of the fifth nerve.



FIG. 1.

FIG. 2.

AMYLOID DEGENERATION OF THE CEREBRAL CORTEX. (WYNNER.)

Fig. 1 shows amyloid disease of vessels in a fresh section from first frontal convolution. A few of the nerve-cells have been indicated. Spider-cells are absent in this part of section; elsewhere they were abundant. a, small artery; b, a mass of amyloid material. c, capillaries. Zeiss's D eye-piece, No. 4.

Fig. 2 shows the usual condition of corresponding vessels in general paralysis. Spider-cells are conspicuous. a, small artery; c, capillaries. Zeiss's D eye-piece, No. 4.

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" 4. If the face and limbs of the same side are anæsthetic, the lesion lies in the brain at a point higher than the junction of the ascending and descending roots of the fifth nerve in the pons. Its position is then to be determined by other symptoms. It may involve the entire formatio reticularis in the upper pons, or crus cerebri; it may be situated in the posterior part of the internal capsule; it may lie in the centrum ovale, destroying the radiation

of sensory fibres from the internal capsule; it may be in the sensory area of the cortex, in which all of these tracts terminate."

Rockwell,⁵⁹ commenting on Starr's paper, mentions a case of lesion of the pons seen by him, presenting a peculiar symptom in frequently recurring disappearance of the radial pulse on the right side.

Miscellaneous Lesions.—Two cases of ossification of the dura mater—an exceedingly rare condition—are recorded, one by Thero-loix and Pasquier,⁷ the other by Paret.²¹¹ In both cases the arteries were atheromatous, and in both death occurred from hæmorrhage.

An amyloid degeneration of the cerebral cortex is recorded by Wynne² (see cut on preceding page), the patient dying of general paresis.

CEREBRAL ABSCESS.

Picque and Ferrier⁸⁷ contribute a statistical and analytical paper upon cerebral abscess confirmatory of most of the generally accepted views as to etiology, prognosis, and methods of treatment. They find that more than one-half of all cases originate from aural disease, and they reject, as misleading, the statistics of Jansen, who found, in an aural clinic in Berlin, abscess only in the proportion of 1 case to 2650 cases of acute otitis, and 1 to 400 of chronic suppurative otitis. Abscess is twice as frequent in adults as in children. Two varieties, the extra-dural and the true encephalic, are considered separately. Commenting upon Hessler's statement that three-fourths of all fatal cases of otitis present purulent pachymeningitis, they find that in less than one-fourth of these cases is there any direct communication apparent between the tympanum and the extra-dural abscess, microbic migration having taken place through microscopic avenues. Taking 119 cases of true encephalic abscess, analysis shows, with reference to localization, 82 in the middle lobe, 24 in the cerebellum, 4 in both cerebrum and cerebellum, 3 in the pons, 2 in the occipital lobe, and 1 each in the frontal lobe and cerebellar peduncle. Cerebellar abscess is more frequent in adults than in children, in whom the location is almost exclusively in the temporo-sphenoidal lobe. Sinus phlebitis and meningitis are the most frequent complications. Wheeler's method of trephining at the top and in front of a vertical line, dividing the mastoid into two equal parts, is recom-

mended, and they advocate the full and free exposure of the surfaces of the petrous bone, as a "peri-petrous" abscess is ordinarily the intermediate process between otitis and cerebral abscess. This should be done even where a well-localized abscess has been directly opened.

An elaborate monograph by Frank Allport, ⁶¹_{Oct. 22 to Dec. 24, '92} entitled "Purulent Brain Deposits and Phlebitis and Thrombosis of the Cerebral Veins and Sinuses following Ear Disease," contains an exhaustive analysis of 169 cases, including 6 of the author's. Of this number, 98 were cases of abscess proper, and of these 40 were located in the temporal lobe and 31 in the cerebellum. Only nine abscesses were found which were distinctly encapsulated. In nearly all cases more or less meningitis existed, most frequently at the base. Slowly-developing abscesses constitute the encapsulated variety. Localizing symptoms were found, in a large proportion of cases, conspicuous by their absence. With reference to the generally accepted opinion that brain-abscess causes a subnormal temperature, the author finds only 2 cases of these 98 in which the temperature was below normal. The most constant alteration of temperature was a moderate elevation. Aphasia was present in only 6 of 40 cases, involving the temporal lobe, many of them on the left side. Of these 169 cases in which pus in some form was present in the brain, only 11 recoveries occurred, all of which were operative cases. In 10 other cases the pus was evacuated, either by operation or spontaneously. In other words, every case not operated upon died, while more than 50 per cent. of those in which the skull was trephined recovered,—a result which emphasizes, so forcibly as to require no further comment, the imperative necessity for operative interference in all cases of cerebral abscess.

E. L. Strode ¹⁸⁶_{Oct., '92} relates the history of an interesting case of cerebral abscess occurring in a phthisical woman, who also developed, during the same illness, abscesses of the uterus and at the umbilicus. On the fifth day of cerebral symptoms, which were headache, deafness, coma, and tetanic spasm of the right side, with anæsthesia of the same side, a free discharge of pus occurred spontaneously from the mouth and nose, resulting in an immediate improvement in the patient's condition. This discharge occurred repeatedly afterward at varying intervals, the patient showing

alternate relapses and improvement in a ratio to the discharge, until finally, some months later, she is reported to have made a good recovery, the only symptom remaining being a mental deficiency. The author condemns his own policy of surgical inaction, stating that he would trephine should a repetition of his experience in this case occur again. Just where he would enter the cranial cavity, however, he wisely fails to state. It would be difficult to conceive of any benefit to the patient from an opening at the convexity, since the lesion was evidently basilar and possibly a purulent meningitis secondary to a broken-down tubercular neoplasm. The tendency to spontaneous evacuation of pus in tubercular disease affecting the base was a striking feature in a somewhat similar case reported by the writer ²⁴²₇₈ three years ago, although the patient died. It seems strange that some clearly-defined and recognized surgical procedure, looking to the evacuation of pus in these cases through puncture of the thin, bony septum separating the base from the nasal roof, has not been established. The almost inevitably fatal result in such cases would apparently justify the most heroic measures.

Cases of cerebral abscess following otitis, and ending fatally, are reported by Sainsbury and Roughton, ⁶_{Sept. 16} Bradshaw, ²_{June 8} Cotterill, ⁸⁶_{July} Kenefick, ⁹⁹_{Aug. 10} and McFatricks. ¹⁹²_{July} In Bradshaw's and Cotterill's cases the mastoid was opened, though in neither case was pus found at the operation,—due, in the case of Cotterill's patient, to an unusual location in the posterior tip of the occipital lobe. In all the other cases the abscess was located in the cerebellum. Two cases of cerebral abscess originating in trauma of the face or head are reported,—one by Schamberg, ¹¹²_{July} whose patient had received a gunshot wound, tearing away the nose, the right eye, and the right malar bone; the other by Gaudoin, ²³⁹_{Sept. 1} in whose patient death was due to a cerebellar abscess caused by a gunshot wound of the skull received six years previously. Treves ⁶_{Dec. 24, '78} relates the history of a match-maker who died of cerebral abscess, which developed through the medium of an extensive necrosis of the malar bone from phosphorous poisoning.

Three cases of cerebral abscess cured by operation are recorded in the literature of the year,—one by Stewart, ¹⁶¹_{Dec. 20, '78} another by Terrillon, ²²_{Jan. 25} and a third by Ransom. ²_{May 6} Terrillon's case was the result of an otitis which occurred as a complication in an attack of

la grippe one year previously. The abscess symptoms were present four months before the comatose condition developed which necessitated the operation. Two trephine-openings were made in the skull, the first at the usual site, showing pus through the aspirating-needle in the direction of the occipital lobe. The second opening was then made directly over the abscess, the pus evacuated, the patient making a good recovery, although the ear continued to discharge.

Stewart's patient developed symptoms of cerebral abscess five weeks after a fracture of the skull from a blow over the lower border of the left ascending parietal convolutions. The symptoms were: headache, fever, delirium, convulsions, double optic neuritis, aphasia, agraphia, and partial word-blindness, with right hemiplegia, defect of tactile sensibility, and marked impairment of the muscular sense. A trephine-opening at the site of fracture showed a brain normal in appearance superficially, but the exploring-needle thrust directly into the brain entered an abscess-cavity about three-fourths of an inch beneath the surface. Through a free incision the pus was evacuated, the patient being discharged cured one month later. The abscess involved chiefly the lower ascending parietal convolution, and also a portion of the adjacent ascending frontal and the superior temporo-sphenoidal convolutions.

Very exhaustive abstracts from clinical papers upon cerebral abscess have also appeared during the year. ³⁴⁴
B. 33, 34, pp. 153, 228

MENINGITIS.

Cerebro-Spinal Meningitis.—Früs⁶⁷⁸_{July} gives some interesting details of the histories of 30 cases of this disease observed by him in an epidemic in 1891. In 17 cases the most striking symptom was herpes, several of these cases dying. In 11 cases the urine contained albumen, but no casts; in 2 cases there was polyuria, and in 1 glycosuria, the patient dying on the fourth day. The patellar reflex was found unaltered, as a rule. Four patients had a swelling of the elbow-joint from which synovial fluid was evacuated by puncture, which, however, contained no micro-organisms. An epidemic of cerebro-spinal meningitis of unusual malignancy, which occurred in several mining towns in Maryland during the winter and spring of 1892, was made the subject of an

official investigation by the State Board of Health, through its representative, Dr. Flexner. A partial report of the investigation appeared in a joint paper by Flexner and Barker.⁷⁶⁴ June, July The disease occurred principally in the families of miners, but no class was exempt; nor was there any special evidence of social discrimination. The sanitary condition of the valley was as bad as could be imagined. In Lonaconing a river runs through the centre of the town, acting as a sewer. The houses were built in rows, tier above tier, on the hill-sides, which rose from either bank of the river. The out-houses were usually behind and above the dwellings, and in heavy rains the sewage and refuse from upper yards and out-houses were washed down through the premises below. A slaughter-house stood in the centre of the town, on the river-bank. The drinking-water was obtained chiefly from wells contaminated by surface-washings and percolations from the filthy river. In many families there was overcrowding. The clinical observations noted during the investigation included altogether 120 cases. The mortality, counting all cases, severe, mild, and abortive, was about 40 per cent. The first cases occurred in two young men who became overheated and afterward suddenly chilled at a dance, both developing the disease next day. Every type of the disease was encountered. Children were chiefly affected, and exposure to cold was a conspicuous factor, every cold snap being immediately followed by a fresh outbreak. Several cases were observed in middle-age and robust adults, and in one case the patient was only five months old. Symptomatically the disease presented its characteristic irregularity. Joint complications were, however, rather unusually frequent, being present in at least 20 per cent. of the severer cases. Among the cutaneous symptoms herpes was most common, especially along the distribution of the cutaneous vessels and nerves of the face and neck. Very careful studies were made of the blood, for which every opportunity was offered in advance. The most constant alteration was an increased number of the white blood-corpuscles, there being from 10,000 to 30,000 to the cubic millimetre. The study of dried and stained specimens (Ehrlich's method) showed "that this increase was due to an augmentation of the number of neurotrophilic leucocytes with polymorphous nuclei, the characteristic change in all inflammatory leucocytes." Two necropsies were secured,—one that of

an acute case in a girl 9 years old, who died on the third day; the other that of a girl 16 years old, who died three weeks after the beginning of the attack. In both cases more or less characteristic gross changes were found, varying in character with the duration of the disease. Besides the meningitis there was, in the younger child, distinct cerebritis and myelitis, with inflammation and degeneration in the spinal nerves. Bacteriological examination showed micro-organisms in both cases, which were indistinguishable morphologically from the micrococcus lanceolatus. Inoculation experiments had also been made, but not completed at the time of the preliminary report.

The authors conclude tentatively, with reference to the pathogenesis of the disease, that it is practically an auto-infection from the micrococcus lanceolatus, which, ordinarily innocuous and normally present in the mouth, is rendered virulent by extraneous causes which chemically alter the bodily secretions. This theory is, they hold, consistent with the striking inconstancy of external conditions, such as pollution of soil and water in different epidemics, and the non-contagiousness of the disease. It is also consonant with the varying symptom-picture presented by the disease. The full report of Flexner and Barker, on account of the extraordinary opportunity afforded them in one of the most extensive epidemics which ever occurred in this country, and the excellent facilities for bacterial work available at Johns Hopkins Hospital, where the work is being done, should constitute a most valuable addition to our knowledge of this very grave disease. This same epidemic afforded Randolph, of Johns Hopkins Hospital,⁷⁶⁴ June, July an opportunity to study the eye-symptoms, with results both interesting and instructive. He first enumerates the various affections of the eye which have been noted with more or less frequency in this disease by different observers. He mentions conjunctivitis, altered pupils, pus in the anterior chamber, choroiditis and iritis, suppurative cyclitis, retinitis, panophthalmitis, neuritis, etc. The fundus should always be examined, as there is a direct communication between the arachnoid space and the deeper structures of the eye through the intra-vaginal space. Short records are given of 35 cases; 21 fatal. Special attention is drawn to the last case, of a child aged 20 months, in which there was thrombosis of the central vein with a hæmorrhagic retinitis. This is the youngest

case within the author's knowledge. The fundus was normal in only 7 cases, and of these 7 1 had divergent strabismus and dilated pupils, another marked nystagmus, and another greatly dilated pupils. In 6 cases there was optic neuritis, and in 19 great venous engorgement and tortuosity, with congestion of the optic disc. Of the 3 cases in which there was an absence of all eye-symptoms 2 recovered and 1 died, and the author believes that a later examination would have discovered a lesion in the fundus in the last case. All cases of strabismus (8) were divergent, and the right eye was always affected. If the cases of optic neuritis had survived, the author thinks that atrophy would have followed. He refers to a case, however, of marked neuritis in which bad vision persisted, but a year later the boy could see well. Every extensive epidemic is apt to be associated with a special type of eye disease, as tortuosity and distension of the retinal veins with congestion of the disc, as in this epidemic. The author looks upon eye lesions, and especially fundus changes, as signifying grave cases.

Biggs ¹⁵¹_{Aug.} reports a case of cerebro-spinal meningitis, of interest from the fact that an unusual condition was present in persistent hæmaturia. Thompson ⁵⁹_{Apr. 8} relates the history of a boy who died of cerebro-spinal meningitis, which apparently originated in trauma. The remarkable features of the case were persistent coma for two weeks and phenomenal emaciation. Osler ⁷⁶⁴_{Oct., Nov., '92} gives the clinical history of a case of chronic cerebro-spinal meningitis. Pritchard ¹⁰⁷⁵_{Feb.} makes a contribution to the study of cerebro-spinal meningitis, especially its etiology, with the report of a case following influenza, which recovered.

Smith ⁷⁴_{Apr.} recommends bichloride of mercury as a specific in this disease, administered hypodermatically and in heroic doses. He begins the drug with an injection of $\frac{1}{8}$ to $\frac{1}{4}$ grain (0.008 to 0.016 gramme), rendered soluble by the addition of chloride of ammonia, selecting the thick muscles of the scapula as the site, and following this with doses of from $\frac{1}{80}$ to $\frac{1}{16}$ grain (0.002 to 0.004 gramme) every hour by the stomach, until the characteristic effects of the drug on the alimentary tract occur. By the use of this method, with the addition only of small doses of bromide of potassium, he claims to have treated sixteen cases with uniform success.

Tubercular Meningitis.—Angel Money ²⁸⁷_{June 15} calls attention to

the value of the reflexes, and especially the knee-jerks, in the differential diagnosis of tubercular meningitis from typhoid and other fevers. In typhoid the knee-jerks are altered; but the alteration is constant. They are always exaggerated, and ankle-clonus may be present. In tubercular meningitis the jerk is either absent or unequal on the two sides, or present on one side and absent on the other.

Emile Boix ⁹²_{May 10} has made quite an exhaustive study of tuberculous meningitis in the adult, based upon sixty cases gathered principally from French literature, to which he adds two cases of his own. The disease he finds far less common in adults than in children, a fact generally acknowledged. The symptom-picture he also finds much less constant in adults. In children the disease is generally an acute inflammation set up by a few tubercles, usually at the base; in adults the condition is one of general meningeal tuberculosis,—a term which he prefers as being more exact than tuberculous meningitis. He finds that alcoholism and hysteria, hereditary neuroses, and similar factors are powerfully influential in causing tuberculosis to attack the meninges. In these 60 cases there was a strong alcoholic history in 15 and an undecided history in 35, with non-alcoholic disease in only 10. He describes a tetanic form of meningeal tuberculosis which began with a local trismus due to tubercular irritation in the meninges covering the masticatory centre, afterward taking the form of tetanus. He believes this centre to be especially irritable. Diffuse tubercular granulations give rise sometimes to such definite symptoms as to render the diagnosis of the location and character of the disease a matter of ease during life, two cases being cited illustrating this fact.

Simon, ¹¹⁸_{June}, in an article upon the etiology of tubercular meningitis in children, takes the position that it is, in all probability, always secondary in its cerebral development to a primary focus elsewhere, and not idiopathic, as asserted by Money. Several observations of his own and others are cited in support of this position.

Dennison ⁶¹_{June}, reports a case of chronic tubercular basilar meningitis in an adult, in which the diagnosis was established and cure effected by means of injections of tuberculin. Jaccoud ¹⁰⁰_{Aug. 29} writes upon the diagnosis of tubercular meningitis in the adult.

Meningitis serosa is the term used by Quincke⁴⁰⁴_{R. 67, p. 685} to describe a certain form of meningitis analogous, according to the author, to intermittent hydrops of joints. It is chiefly ventricular, attended with little fever, of slow course, and almost always attended by choked discs. An important point in differentiating it from tubercular meningitis is the absence of tuberculosis elsewhere. This form of meningitis includes many of the cases of symptomatic hydrocephalus.

Suppurative Meningitis.—Zorkendorfer⁸⁸_{No. 18, July 18}⁹⁰ reports a case in support of the theory advanced by Fraenkel and others of the etiological relation of the pneumococcus to purulent meningitis. Autopsy in this case, which was one of purulent meningitis uncomplicated by any pneumonia, showed greenish-yellow pus in the sphenoidal cavities, and a suppurative pharyngitis. The pus taken from the meninges and from the sphenoidal cells was found microscopically to contain pneumococci. Cultures and inoculation also showed their presence in the meninges, in pure cultures and elsewhere, with other cocci. Section of the brain showed the diplococci only in the purulent meninges—in no instance in the brain-substance or the blood-vessels.

Kirchner⁴_{v. 20, No. 23} gives the history of a case of purulent meningitis secondary to chronic ear disease, in which the infection occurred through the labyrinth and not through the tympanic roof or mastoid cells, both of which were found healthy at the autopsy. The purulent meningitis was general, but especially affected the right temporal region; bacteriologically only the staphylococcus was found. Coleman¹⁵¹_{June} exhibited before the New York Pathological Society the brain of a man who died somewhat suddenly, the specimen showing purulent meningitis to have been the cause of death. The absence of diagnostic symptoms was to some extent explained by the fact that, while the convexity was affected with a wide-spread léptomeningitis, the base was remarkably free from pus.

Pachymeningitis Hæmorrhagica.—The old question as to whether the origin of this condition is essentially inflammatory or hæmorrhagic affords a subject for abundant literature. Robertson,¹⁶⁶_{Apr., July} in an elaborate and well-written paper, summarizes his views in the statement that “the condition is due to a passive engorgement of a compensatory nature, caused by a process analogous

to dry cupping," or, in other words, that the origin is essentially hæmorrhagic. Wigglesworth, ⁴⁷_{Autumn, Winter, '98} whose writings constitute an annual contribution to the subject, reiterates his well-known views to the same effect, while Bondurant, ⁹⁸_{Jan.} basing his opinion upon the findings in eight necropsies, tersely pronounces "meningeal hæmorrhage" as the cause. Clinical papers upon the subject are by Jamieson, ²⁸⁷_{July 18}, O'Carroll, ¹⁶_{May} and Popescu, ⁹⁹⁶_{Apr. 25} the last of whom describes a case of this character caused by the rupture of an aneurism of the Sylvian artery.

Rheumatic Meningitis.—Whitmire, ¹¹⁵_{Feb.} in a paper upon his personal symptoms, impressions, and experience during an attack of metastatic rheumatism of the dura mater and arachnoid membranes, very graphically describes an attack which corresponded very closely to many of the cases seen during the last two years of the epidemic of *la grippe*. Silvestre ¹¹⁸_{July} also reports a case from *la grippe*.

EPILEPSY.

Etiology and Pathogenesis.—Recent theories as to the pathogeny of epilepsy are discussed in an editorial, ⁹⁹_{Jan. 3} the results of late studies by Blocq and Marinesco ³_{Nov. 12, '98} being given with special elaboration. These writers, pupils of Charcot, examined the medulla and portions of the Rolandic cortex in nine cases of essential epilepsy that succumbed in the status epilepticus. Several methods of staining were used, including Marchi's. All the sections prepared by the latter process showed that the perivascular sheaths in the cortex and white substance were infiltrated with granular bodies, composed either of degenerated myelin or of blood-pigment. Researches undertaken to decide whether these lesions were peculiar to epilepsy proved that, in a minor degree, they are present in disseminated sclerosis, amyotrophic lateral sclerosis, and even in normal brain. The neuroglia cells of the first layer of cortex contained black granules. The tangential fibres were intact in most cases. The other stains gave variable results: in four cases there was no recognizable morbid change; in four other cases there were various degrees of diffuse cortical sclerosis with vascular changes. The ninth case presented hyperplasia of Deiter's cells in the outermost layer, with disseminated foci of sclerosis around some of the vessels in the deeper layers or isolated in the ground-substance. The medulla was normal in all the cases, excepting

punctiform hæmorrhages in one. Their conclusions are: 1. In a certain number of cases of idiopathic epilepsy, there exist no appreciable lesions of the nerve-centres. 2. In the cases where these lesions are observed they are very variable. 3. The most constant lesions, when such exist, are seated in the psychomotor zones, and are characterized (*a*) by vascular alterations, and (*b*) by hyperplasia of the neuroglia, sometimes at the surface of the cortex, sometimes at some depth.

They admit the frequent occurrence of cortical lesions of vascular origin in epilepsy, but believe that these lesions, far from being primary, as taught by Chaslin and Marie, are secondary and consecutive to the attacks. They seem inclined to attach more importance to conditions of autotoxæmia as a primary cause than to gross cerebral lesions, quoting Marie, Féré, Herter, and Smith in support of this view.

A well-written and very valuable criticism of the teachings of Bevan Lewis, as to the pathological histology of epilepsy, is contributed by Wynne.⁶_{Aug. 19} While admitting that Bevan Lewis does not positively assume that certain conditions are causative or pathologically characteristic of epilepsy, Wynne is led to conclude from the text that Lewis teaches that the essential pathological condition is (1) preponderance of vacuolation of the second layer; (2) absence of spider-cells; (3) excess of neuroglia. Basing his statements upon examinations carefully made in twenty cases of fatal epilepsy, Wynne found, as regards the first proportion, that vacuolation, when present in the second layer, was always much more marked in the deeper layers. He never found it present to the extent described by Lewis. The second proposition he finds equally untenable, spider-cells having been found in epilepsy quite frequently, even in cases uncomplicated by alcoholism, senile atrophy, or paralytic dementia. An excess of neuroglia he finds frequently present, but not as a characteristic condition, being quite common in all kinds of insanity.

Van Giesen⁵⁹_{v. 48, p. 618} has examined portions of the brain-tissue removed from two epileptic patients operated upon by McBurney, both of which had their origin in trauma. The first patient developed epilepsy of the Jacksonian type three years after a fracture of the parietal region. Examination of the removed portion of brain revealed the presence of a rigid, apparently calcified piece

of connective tissue pressing against the brain and presumably acting as a foreign body. Under this the pia mater was in a condition of chronic inflammation, being thickened to a moderate extent by the presence of an increased amount of connective tissue. In the cortex itself no gross changes are described, but a minute and detailed examination revealed the presence of marked degenerative changes in the ganglion cells, amounting, in advanced stages, to almost complete dissolution.

The second case, a boy 14 years old, had hemiplegia and Jacksonian epilepsy, the result of a fall. The first operation relieved temporarily, but a second operation was required six months later by a recurrence of the fits. The gross lesion was found to be a cyst, or, rather, two cysts. Examination of the tissue removed at the operation showed dense masses of connective tissue encroaching upon the convolutions, and in some places almost isolating small islets of gray matter and surrounding them. Changes almost identical in character with those described in the first case were found in the ganglion cells, and there were also changes in the white matter of the convolutions.

Epilepsy the result of chemical irritation has been made the subject of experimental studies by Kisseljow and Gallerani and Lussana,⁷⁵ the former using hydrastine. The effect of this drug injected into a vein or beneath the skin was to greatly reduce the excitability of the cortex. Gallerani and Lussana used creatinin and cinchonidine. The former drug, applied to the cortex of dogs and rabbits, quickly produced epileptic convulsions and choreiform movements, while injected subcutaneously it had no such effect. Cinchonidine exerted a special and relative influence upon the basal ganglia and never excited choreiform movements, leading the authors to the conclusion that chorea, as contrasted with epilepsy, is always of exclusively cortical origin.

Féré⁷⁵¹ ^{June 8; June 24} makes an interesting observation of a clinical example of epilepsy in a canary. The attack began with an aura, followed by rotation of the head and a fall, tonic succeeded by clonic spasms, and an after-period of stupidity, with impulsive acts. A particularly interesting observation in connection with the case is recorded in the manifestly beneficial effect of bromide of potassium administered in the drinking-water in the proportion of 1 per cent., "a larger dose producing bromism." It would be interest-

ing to learn what were the evidences of bromism. The writer has seen two cases of epilepsy in canaries,—a species of bird which seems to be peculiarly susceptible to the disease,—and in both cases the analogy was most remarkable with the disease as it occurs in man.

In a paper bearing upon the etiology of epilepsy Ferguson⁹⁸ expresses a belief in the tenability of Haig's theory of excess of uric acid as a factor, reiterating the statement, made by him in a former contribution to the subject, that "epilepsy, while probably not in all cases a food diathesis, is," he is inclined to think, "a disease showing a strong tendency that way in most cases."

Symptomatology.—Webber⁹⁹ gives an interesting statistical study of 162 cases of epilepsy observed by him. Of this number, 102 were males and 60 females. Three patients developed epilepsy when over 50 years of age, the oldest being 68, in whom the cause was sun-stroke. Thirty-six cases began in infancy and 9 others when 3 years old. In the largest number the developed disease occurred between the ages of 10 and 15 years. Injury to the head figured as the cause in the largest number of cases (24). Overheating is stated to have been the cause in 11, while fright, acute disease, and syphilis were held responsible for 6 cases each. An aura was constantly present in 62 cases, occasionally present in 10, and absent in 28 in a total of 100 cases in which this symptom was investigated. As to the type, 25 of these cases were petit mal alone, 48 grand mal, and in 89 the two forms were combined. The cry in the beginning of the attack was present in only 13 cases out of 111. Spontaneous remissions in the attacks were noted in cases lasting several years. In 14 cases of epilepsy the patients had suffered from migraine previously, this disappearing when the fits began. In 1 case migraine appeared conversely after the fits ceased. As to treatment and its effects, only 60 were available for reliable statistics. Of this number, only 10 cases received no benefit; 2 cases died in the status epilepticus; 5 cases are said to have been cured who were not the subjects of syphilis, and were, presumably, cases of essential or so-called idiopathic epilepsy.

Baker,² in a study of epilepsy from an alienistic stand-point, based upon cases observed at the Broadmoor Criminal Lunatic Asylum, found that traumatic cases, especially head injuries, might

induce a dangerous form of epilepsy; that idiopathic causes originated a type less violent, and that epileptics with congenital defect were less dangerous than either of the others.

Browning²⁴²_{June, July, Aug.} contributes a paper reflecting careful and elaborate studies of the epileptic interval, its phenomena, and their importance as a guide to treatment. Pupillary changes, peculiarities of the heart's action and pulse, affections of the respiratory, digestive, and sexual functions, cutaneous manifestations, psychical and motor disturbances of a functional character, and other less-common phenomena, are discussed at length and with interest. The psychoses of epilepsy are the subject of a paper by Stonehouse,²¹⁶_{Aug.} who gives a *résumé*, with some personal observations, of the subject. Meugy¹⁵²_{Apr. 14} relates the history of a case of fifteen years' duration, which was, apparently, of the idiopathic type. Examination showed a pulse of 27, strong, regular, and not associated with any demonstrable heart lesion. The patient died, but unfortunately no autopsy was obtained. The author makes the case a text for certain conclusions as to the significance of infrequent pulse with epilepsy. Vertigo is a much more common associated condition than epilepsy. Cardiac, renal, and digestive derangement is quite frequent in these cases. The patients are usually well advanced in years, and it is more common in men than women. The most probable theory, he thinks, is that of a bulbar lesion, and he finds in some cases a history of an injury to the head or neck. The paper contains a fairly-full bibliography. Voisin and Péron,⁹⁴_{Jan.} from further studies of the urine in epilepsy, conclude that an auto-intoxication, shown in variations in urinary toxicity, has an intimate relation to epileptic explosions. Féré¹⁴_{Mar. 16, 92} finds, in testing the pressure-sense in epilepsy, that the alterations in sensibility present are similar to those found in hysterics and certain degenerate types, and that this test is therefore of no value in a diagnosis between hysteria and epilepsy. Georges Martin¹⁸⁸_{Apr. 2} concludes, from a study of ocular conditions in epilepsy, that astigmatism is no more a cause of epilepsy than hypermetropia. He had never seen epilepsy modified by glasses to control either astigmatism or hypermetropia. When no other cause could be found, however, it was wise to think of ocular conditions. Wyllie²_{Apr. 1} records a case of spontaneous fracture of the femur in an epileptic boy. A case of extensive ecchymoses

occurring in an epileptic attack, and pronounced by Pitres to be unique in the literature of the subject, was reported by Cabadé.⁶ The ecchymoses covered the thorax anteriorly throughout, and both shoulders were ecchymotic. The condition did not originate in trauma.

Bastian⁶ reports the case of an epileptic woman, 55 years old, subject to attacks since childhood and twice insane, from whose body eighty-six needles had been removed at different times. The entire left side of the body seemed to be the selected field, and especially the leg. One needle was expelled from the mouth in a coughing fit. None were ever passed *per rectum*. She was not hemianæsthetic, and no explanation is given of the method of introduction.

Types.—The following types of epilepsy have been reported:

Traumatic Epilepsy.—Bristowe¹⁰⁷⁷ describes a very interesting case of epilepsy associated with paraplegia, both of which developed as a result of an injury to the back incurred in a railway accident. The fits, which came on quite soon after the accident and some time before the paraplegia, always began with an aura at the seat of injury in the back, passing thence downward to the toes, thence back to the spine and then to the brain, followed by unconsciousness and the convulsion. In the fits the back was arched. The convulsions were always induced by movements, voluntary and involuntary, of the trunk, never occurring at any other time, and were relieved by a special apparatus arranged so as to give fixation to the back. James⁸⁶ relates the case of a boy, 13 years old, who had a first attack of epilepsy two days after a blow over the left forehead which knocked him down, stunning him. The point of special interest in this case was the aura, consisting of a sensation of tickling in the ball of the great toe of the left side. The fits could be induced by artificially tickling the great toe, although the boy could arrest the induced attacks, and sometimes the others, by grasping the leg and holding it firmly, preventing the sensation from passing up the leg and to the brain. There was no paralysis, no sensory defect, no special nerve-symptoms, and no general symptoms indicating a gross lesion except the convulsions. The spasms were general and never Jacksonian, notwithstanding the constancy of the aura.

Jacksonian Epilepsy.—Hibberd⁵⁶ reports a case of Jacksonian

epilepsy possessing several points of special interest, chief of which is the probable etiological relationship, in the absence of trauma, syphilis, and tuberculosis, of grave digestive derangement, manifested in alternate diarrhoea and constipation, excessive flatulency and distress after eating, finally resulting in a condition of most obstinate constipation. The patient, a man 34 years old, without neurotic heredity, temperate and regular in habits, living an outdoor, active life as a farmer, developed, some months after this digestive disturbance began and while it still existed, first paroxysmal atonic spasms in the upper and lower extremities, followed a few weeks later by fully-developed Jacksonian convulsions. These attacks began invariably with an aura of tingling in the ring and little finger of the right hand, followed by slight local tonic spasm, thence passing to the right lower extremity and finally affecting the right face, partial, deepening into complete aphasia, but with retained consciousness throughout, and transient right hemiplegia, complete during the attack. The etiological relationship of digestive derangement cannot be accepted as positive in this case, for the reason that constitutional conditions, such as auto-toxæmia, would be very unlikely to develop a Jacksonian type of epilepsy, no such case having been recorded, and for the additional reason that a localized neoplastic lesion has not been excluded in this particular case, though, from the history, no indications, other than the type of epilepsy, pointed to neoplasm. Carter¹⁸⁷ reports a case of Jacksonian epilepsy in a man previously afflicted with syphilis, in whom the spasms were limited to the tongue, right side of face, and right arm. In several attacks only the tongue was affected. There was paresis of the right upper extremity and of the right leg, also paralysis of the lower right face and deafness in the left ear. Under "mixed" treatment very great improvement occurred. Eustace and Parsons² report a case, with autopsy, of Jacksonian epilepsy of several years' standing, found to have been dependent upon a dural hæmatoma of large size over Rolandic area of right hemisphere. W. Hale White² has published a study of a case of focal epilepsy and of the results produced by excision of a small area of the motor cortex. The case was one of convulsive seizures of the right arm, due to a sarcoma of the lower left ascending parietal convolution. The patient, a woman, had suffered from mammary cancer, which was removed by opera-

tion. Two years afterward she had her first convulsion, although she had suffered from attacks of numbness and tingling in the right hand and arm some months earlier. Examination showed the following data, upon which a diagnosis was made of tumor implicating the arm area in the left cerebral cortex: Epileptic seizures involving the right hand and arm, preceded by aura of tingling and numbness in right thumb and fingers, with paresis of this member in intervals of attacks; optic neuritis of the right eye, exaggerated reflexes on the right side. The piece of cortex excised at the operation had the long axis antero-posterior and extending from the Rolandic fissure in front to just across the lower extremity of the interparietal sulcus behind. The operation was done by Arbutnot Lane. Patient lived thirty-eight days after, and during this time not a single fit occurred. The cause of death was associated with other secondary cancerous deposits, as demonstrated at the necropsy. The points of interest connected with the removal of a section of the cortex were related to the sensory phenomena particularly. Contrary to the rule, all forms of common sensation were found absolutely unimpaired after removal of the cortical tissue. There had been no impairment of sensation before, except a subjective numbness in the arm, which disappeared after the operation and did not recur. An interesting observation upon the temperature range after operation showed an almost constant excess of one or more degrees under the right axilla (side opposite area and of cortex removal) as contrasted with the left.

Masked Epilepsy.—In a paper upon this subject, Shaw⁸² details histories of eight cases, and emphasizes the importance of careful investigation in all cases of “sudden loss of memory, periodical attacks of forgetfulness, sudden and careless changes in deportment or disposition, strange and indescribable sensations, hallucinations of the special senses, repeated attacks of vertigo, transient periods of moroseness,” etc., as evidences of epilepsy of the masked type.

Hystero-Epilepsy.—Gilles de la Tourette⁸³ advises careful examination of the urine in all cases of epilepsy, for the purpose of differentiating hysterical elements, especially in cases in which operation is possible, basing the caution upon investigations made by Cathelineau and himself in Charcot’s clinic, which demonstrated

that in epilepsy due to a neoplasm there is marked increase in the urea and phosphates during the fits, while in the hysterical cases the opposite is true. Hunt²⁶⁷_{July 18} relates the clinical history of an interesting case of hystero-epilepsy, presenting several features rendering the diagnosis problematical in the beginning of the attacks.

Reflex Epilepsy.—Krauss¹⁹_{Feb. 11} enumerates seriatim, and with personal comments, the various sources of peripheral irritation which may stand in a causative relation to epileptic attacks. Kjellman³⁷⁰_{Feb.} has been studying the relationship of intra-nasal changes to the causation of epilepsy. He has found 15 cases in literature in which epileptiform convulsions were attributed to such causes, and ceased after the cure of the following conditions: polypi, foreign bodies, and swelling of the mucous membrane of the turbinated bones. To these 15 cases he adds 2 of his own,—1 that of a boy, 12 years old, who had been for several years subject to convulsions, which disappeared and had not returned in four years after the removal by cauterization of marked hypertrophy of the turbinated bones. The second case was that of a boy, 6 years old, in whom attacks of long standing were made to disappear by cauterization of the inferior turbinated bones, and the correction of a habit the boy had developed of sleeping with his fingers in such a position as to close the left nostril. No attacks had occurred for seventeen months after the cauterization and the correction of the habit. Kjellman does not place so much importance, in these cases, upon the theory of reflex nervous irritation as he does upon the theory of dyspnoea from obstruction of nasal respiration similar in character to the convulsions which occur in infantile life from spasm of the glottis. Emile Girat¹⁷_{Nov. 12, 92} records two cases of pseudo-epilepsy cured by the expulsion of intestinal worms.

Vertiginous Epilepsy.—While deprecating the acceptance of this term as indicating a distinct type of epilepsy, its admission is justified, if, as seems probable, the presence of vertigo as a morbid or special feature affords an index to a method of treatment which renders the type amenable to cure. That it is a form of epilepsy especially amenable to cure by certain special medication is evidently the opinion of Bourneville,⁷³_{May 6} who reports five cases of this variety, all of them benefited, especially as to the vertigo, and one of them, an idiot, so decidedly improved as to render him an intelligent member of society.

Treatment.—Nothing superior to the bromides, alone or in association, has been evolved in the therapeutics of epilepsy. The many new remedies suggested during the past few years have gravitated to their proper level of comparative uselessness. Antirabic inoculations, injections of cerebrine or other animal extracts, certain drugs, as amylene hydrate, antipyrin, and others, have been found, on further test, to show no beneficial effect, or, if present, it was only that due to a change to almost any new drug,—a well-known characteristic of epilepsy. Ballet, ¹⁴_{July}, for example, reports a case of epilepsy made worse by antirabic injections, though he rather looked upon it as a coincidence and not a result. Borax, on the other hand, as a means of relief in epilepsy, seems to have established for itself a fixed and permanent position. Pastena, ¹⁰³⁹_{p.121, '98} contributes a paper advocating the use of biborate of sodium as an effective remedy. He finds that the number of attacks is diminished and at times caused to disappear for months. The duration of the attack is lessened also, but the drug did not calm motor excitement following, and failed entirely in epileptic mania. He gave from 4 grammes to 7 grammes (1 to 1 $\frac{3}{4}$ drachms) daily, largely diluted in syrup and water, and did not observe gastric disturbance. The coal-tar derivatives seem to have also a somewhat fixed position as valuable adjuvants. Diller, ¹⁶¹_{Jan.} commenting on the fact that Dana does not mention acetanilid as a remedy in epilepsy, states that in his experience it is invariably more or less serviceable and second in value only to the bromides. It produced a decided diminution in the number of attacks and was well borne, causing no depression or other untoward effect. Inglis, ⁸⁰_{Aug. 16} has had a somewhat similar experience, though he rather favors phenacetin and usually gave atropine in conjunction with it. Albertoni, ⁵⁰⁵_{No. 114, '98}, ²_{Mar. 25} has found duboisine sulphate almost a specific in hystero-epilepsy, and Belmondo, ⁵⁰_{v. 18, No. 2} also thinks it of great value in this type of epilepsy. Nitroglycerin is claimed by Bates, ¹_{July 29} to be a very valuable adjunct in the treatment, especially when given during an attack. He finds that it materially shortens the attack, lessens the exhaustion, and greatly modifies the post-epileptic violence sometimes observed. Two old remedies meet with new friends in Lisle, ¹_{Dec., '98} who writes favorably of the action of barium chloride, and Flechsig, ³⁷⁸_{p. 203}, ²⁶_{Sept. 1} who has a high opinion of opium as an agent of value. He uses it in gradually increasing

doses in the form of a gummy extract for five or six weeks before beginning the bromides. His results are stated to have been most remarkable. Bourneville⁷⁸ contributes a paper in which he expresses continued confidence in the value of monobromated camphor in that variety of epilepsy associated with frequent vertigo, and sometimes referred to as vertiginous epilepsy. He has used the drug for twenty years. Five new cases are reported showing good results. The dose used was from 3 to 7 capsules of 3 grains (0.20 gramme) each daily. Negro⁸ tried cerebral galvanism in a case of Jacksonian epilepsy due to a gumma, with good results. The literature of the year contains nothing new with reference to the bromides, although papers upon the subject of decided interest and value are contributed by Féré⁹², Eulenberg¹¹⁶, and Berkely⁷⁶⁴. Féré's paper is in advocacy of large doses of the bromides of potassium or strontium, beginning with 1 drachm (4 grammes) daily, and going up to 4 drachms (16 grammes) of potassium or 5 drachms (20 grammes) of strontium, which latter Féré thinks quite as useful as potassium. These large doses were frequently beneficial only when the maximum was reached. Several patients lost weight and several developed severe eruption. The acne was quickly relieved by suspending the drug. Eulenberg prefers the three salts potassium, sodium, and ammonium combined, given in doses of from 75 to 150 grains (5 to 10 grammes) daily in two doses, morning and evening, or in strictly nocturnal attacks given in one dose at night. He finds about 5 per cent. of epileptics unable to take bromides. This treatment should be carried out for at least three years after the last convulsive attack, he thinks, without interruptions, in pregnancy, menstrual epochs, or even intercurrent illness if possible. Arsenic he considers a valuable adjunct. Berkely reports the results of a series of experiments made as to the value of the bromide of strontium. Eleven cases were selected for experiment and the effects of strontium as compared with other bromide salts were observed, with results in nearly all cases justifying the conclusion that the newer drug was equally effective and in some cases superior to the older salts. Alexander¹⁸⁷ in a paper upon the general treatment of epilepsy, makes some valuable suggestions. He finds borax given alone disappointing in some respects, but given with the bromides its action is much better and the combination is superior to either

drug alone. "The Diet in Epilepsy" is the subject of a paper by Graeme Hammond,⁸¹⁴_{Dec., '92} who states that no absolute rules are possible, but that each case should be considered from a dietetic standpoint individually. Neisser¹¹⁶_{Mar.} finds rest in bed a useful auxiliary in the treatment of epilepsy.

Miller³⁰_{July} relates the history of a carpenter who was cured of epilepsy by removal of palmar contraction and circumcision of a contracted adherent prepuce. Quite an abundant literature appears upon the subject of State care or institution treatment for epilepsy. Among the more notable contributions are papers by Eulenberg,¹¹⁶_{V. 6, '92} Puntton,⁸²_{July 20} Valding,¹⁰⁶_{Aug.} and three very excellent editorials.^{6 2 166}_{Nov. 12, '92; Jan. 7; Apr.}

CEREBRAL SYPHILIS.

The Lettsomian lectures for 1893 were delivered by J. S. Bristowe,²²_{Jan. 9 to Feb. 6} who selected as his subject "Syphilitic Affections of the Nervous System." The lectures contain interesting and valuable abstracts of several clinical histories, but from the standpoint of originality they are most disappointing. Edward C. Mann⁷⁶⁰_{Oct. 15, '92} gives a *résumé* of the diagnostic data available in syphilitic nervous disease which reflects with commendable accuracy the more familiar and constant symptoms of nervous syphilis. P. Domanski,⁶⁷³_{Mar.} writing upon the diagnosis of cerebral syphilis, states that the characteristic symptom-picture is one which presents certain psychic and certain motor symptoms in association, the former involving the faculties of memory, intelligence, combination, application, etc., all of which are weakened; the latter (motor) presenting paralyses of the ocular apparatus, especially visual accommodation and eye-motion, with changes in the pupillary size and reflexes. He fails to note, however, with sufficient emphasis, the fact that this association of symptoms is not at all uncommon in neoplastic lesions about the base; nor does he mention at all periodical nocturnal headaches, with insomnia, which are exceedingly constant and valuable evidences in association with other symptoms of cerebral syphilis. Papers containing clinical histories of cases of cerebral syphilis, and possessing more or less interest and value, are contributed by Hoppe,⁴_{Mar.} Drysdale,²²_{Sept. 6} Smith,¹⁴³_{Apr.} Hoyt,⁹⁸_{Oct., '92} Hays,²²⁴_{Jan. 14} McCall Anderson,²¹³_{Mar.} Moussous,¹⁸⁸_{July 9} Carlo Morascandolo,¹⁰⁹⁷_{May 25} and Maragliano.⁵⁸⁹_{June 8}

DISSEMINATED CEREBRO-SPINAL SCLEROSIS.

Hervouet¹²⁷_{June 12} presented before the Society of Medicine at Nantes a man with the symptom of multiple sclerosis, several of whose family had suffered from the same symptom, causing their death. The author holds this case to be an evidence of the direct hereditary transmissibility of the affections, although this has been denied by Déjerine, Ross, and others. The well-known resemblance in many points between multiple sclerosis and Friedreich's disease, or family tabes, suggests the possibility of a mistake in diagnosis, although a differentiation is said to have been satisfactorily established.

Mensi,⁵⁸⁹_{Nov. 21, '98} writing upon this disease as it occurs in childhood, states that it may present itself in infants in either the classical form, the irregular form, or as a pseudo-sclerosis. He believes that infection plays an important rôle in the etiology, and that cure is possible if the disease has not advanced too far, though the limit of advancement to the curable point is not stated. The marked resemblance to hysteria shown so often in the earlier stages of multiple sclerosis, to which attention has been called by Pitres, Buzzard, Charcot, Grasset, Souques, Oppenheim, and others, is well illustrated in a case reported by Robert Saundby. The patient, a woman 23 years old at the time of observation, suffered, when 14 years old, with giddiness, tinnitus, loss of taste-sense, and weakness of the limbs, especially the legs. A year later she presented the typical symptom-picture of a spastic paraplegia, but under rest and douches she recovered, confirming the diagnosis, apparently, of hysteria. She remained well for six years thereafter, when she developed symptoms quite characteristic of disseminated sclerosis, ptosis, defective vision, pallor of the discs, nystagmus of the ataxic type, slow and hesitating speech, headache, vertigo, loss of tactile and muscular sense, intention tremor, paraplegia, with exaggerated knee-jerks and ankle-clonus, Romberg's symptom, and occasional involuntary spasmodic movements of the lower limbs. The case also emphasizes the fact, now generally accepted, that many cases of the disease only recognized in adult life really begin in childhood, and that the initial stage often appears as a typical spastic paraplegia.

Roget,²¹¹_{Nov. 18, '98} presented a pathological specimen taken from a patient who presented the following history: Cerebellar tituba-

tion and inco-ordination or ataxia of the upper extremities, defective speech, nystagmus, convulsions, and non-persistent tetanic contractions, tremors of the intention type, headaches, and vertigo. The symptoms extended over a long period of years, and were symmetrically bilateral. The specimen showed sclerotic tissue, with destruction of nerve-cells, in the middle cerebellar peduncle. In the medulla the olivary bodies and their related fibres were atrophied. Sections of the cord showed nothing abnormal at different levels. The cerebellum was evidently diseased, but no microscopical examination was made of its tissues. The case is said to have closely resembled one reported by Pierret,⁴¹⁰ and offered a symptom-picture during life which justified a diagnosis of disseminated sclerosis. Moncorvo,¹²⁸ July 18, in a paper upon the etiology and treatment of this disease, reiterates his belief in an infectious origin. Syphilis he believes to be a prominent etiological factor in the hereditary or congenital form, relating two cases confirmatory of this belief, the diagnosis being established as correct by the results in specific treatment. That treatment based upon a supposed cause in syphilis of any type, in multiple sclerosis, should prove curative is not in accord with the general consensus of opinion as to the value of specific treatment in multiple sclerosis. In the editor's experience it is no less disappointing than other methods.

SATURNINE ENCEPHALOPATHY.

Brain poisoning by lead constitutes the subject of a paper by Joseph O'Carroll,¹⁶ who relates in detail the histories of four cases, one of which ended fatally. In two cases the medium of poisoning was a hair-dye largely composed of lead. The symptoms in one case were recurrent hemiparesis, amblyopia, and visual amnesia, with other minor disturbances; in another, violent headaches, attacks of coma lasting from one to six days, delirium, convulsions, and recurrent periods of insanity, with grandiose delusions. The fatal case began with headache, slight mental changes, and amnesia, followed by convulsions, right hemiopia, and slight hemiparesis. In the fourth patient the symptoms indicating cerebral involvement were violent parietal and occipital headache, with convulsions. The paper contains extended references to the literature of the subject, historical and contemporaneous, and is in itself a valuable contribution to neurology.

J. Dixon Mann² publishes the results of a series of extended experiments made with the object of determining the process of elimination in lead poisoning. His conclusions are: 1. That lead is slowly and continuously eliminated by the bowels and, to a very much less extent, by the kidneys. 2. That it exists as a stable compound, once having gained entrance to the system, over which drugs have little effect. 3. That baths, massage, good food, air, and other hygienic accessories are invaluable in the elimination process. He denies that iodide of potassium eliminates lead, but does not dispute the fact that it acts with benefit in some unknown way.

MISCELLANEOUS.

Merkel³⁴ relates the history, with results of autopsy, of a patient who died of anthrax of the brain. This is the fifth case on record, according to the author's statement. The patient was a plasterer, who first complained, a few days before his death, of great exhaustion and giddiness, with vomiting and diarrhoea, temperature 103° F. (39.5° C.). The next day he became unconscious, with epileptiform attacks and Cheyne-Stokes respiration, dying the same evening. The pia was found much injected and cloudy; the cortex filled with small hæmorrhagic patches. The blood-vessels of the brain were stuffed full of anthrax bacilli. Animal experiments by inoculation clearly established the character of the bacilli. Another case of anthrax involving the brain is recorded by Rake.² The patient was a longshoreman, who in his work frequently handled hides. Infection occurred through a pimple on the neck. On the second day the patient developed cerebral symptoms, and died in coma on the fourth day. The necropsy showed many hæmorrhages beneath the arachnoid and one into the lenticular nucleus. Numerous bacilli were found in the extravasated blood, but none in the blood taken from the saphenous vein. Two other cases of a somewhat similar character occurring in the service at Guy's Hospital are referred to, making a total of eight recorded cases.

Möbius³⁴ and Wagner³⁴ do not agree with regard to the nature and causation of spasms and amnesia following restoration to life after hanging. Möbius believes them to be hysterical in character. Wagner thinks that constriction of the carotid, interference with cerebral circulation, and carbonic acid constitute the

more rational explanation. He denies having claimed that the spasms were epileptic. Möbius, after reviewing Wagner's position, thinks that the latter shows more opposition than real difference of opinion.

Cranio-Cerebral Topography.—Clevenger,²⁰⁹⁸_{Oct. 2, '98} in a paper upon brain and skull correlations, reaches some interesting conclusions which are, however, of more interest from a philosophical and psychological than from a practical stand-point. Clado¹⁴_{Apr. 16} offers a new method of cranio-cerebral topography, which possesses the advantage of not being based upon fixed measures. Punton¹⁹_{July 1} writes upon cerebro-spinal architecture as a factor in the diagnosis of nervous disease.

Astasia-Abasia.—Papers of more or less interest upon this subject, chiefly clinical, are contributed by Bremer,²⁴²_{Jan.} Morton Prince,²⁴²_{Dec., '98} Lehman,⁶⁹_{May 26} Féré,¹⁴_{Apr. 19} and Bouchaud.²²⁰_{Dec. 22, '98} Bremer's case was one of pure major hysteria. In Prince's patient there was much to suggest an organic disease as responsible for the symptoms. Lehman's two patients made good recoveries after six weeks' treatment with the Oeynhausen baths. Bouchaud's patients, two in number, both presented the saltatory type of the affection, and were both cured, the one by hypnosis and hydrotherapy, the other by suggestion. Féré relates the histories of two cases which he believes confirms the opinion before expressed by him, that ordinarily, in the so-called systematic paralyses, motor trouble exists in all regions. Fürstner,⁷⁵_{v. 12, No. 13} in an article upon certain conditions characterized by irritative, functional, and paralytic motor troubles, relates several cases with psychic symptoms analogous to what is often found in astasia-abasia, agoraphobia, etc. The cases of three barbers are related, who, under the influence of certain sensorial impressions, were seized with a feeling of anxiety, weakness, and trembling of the right arm, preventing the use of the razor.

The Knee-Jerk.—Six papers upon the patellar tendon reflex have been recently published, which, by a fortunate coincidence, involve a consideration of the subject from as many different stand-points. These papers are by Benedikt,⁶⁹_{No. 19, p. 404; June 24} Sherrington,⁶_{May 6} Reynolds,⁹⁰_{Feb.} Phelps, of Minnesota,¹⁰⁵_{Dec. 1, '98} Ferguson,⁵⁹_{Mar. 4} and Buzzard.¹⁰⁷⁷_{July 6}

Benedikt, in a study of the qualitative variations in the knee-jerk, describes several varieties;—

1. It may be clonic; several jerks rapidly succeeding one another after a single tap upon the tendon. This may occur in cases of palsy of myelitic or cerebral origin and in spastic conditions of spinal origin.

2. The knee-jerk may be paradoxical, the leg being jerked in flexion instead of in extension. This has been observed in a case of tumor of the roof of the fourth ventricle at the level of the striæ acusticæ, presenting headache, static vertigo, and unilateral nervous deafness, to which melancholic apathy was subsequently added. A sub-variety of this form consists in the occurrence of a flexor jerk following the extensor jerk.

3. Percussion of the quadriceps tendon is in some cases followed by contraction not only of the extensors or flexors of the knee, but also of some of the muscles of the trunk and of the opposite side of the body.

4. The knee-jerk may be tonic; the leg is slowly extended, but fails to fall back to its original position. There is, however, no actual spasm of the quadriceps. In cases of marked lateral sclerosis, with greatly increased reflex irritability, percussion of the quadriceps may induce tonic extensor or flexor spasm.

5. The knee-jerk may be delayed; or (6) it may become exhausted.

Sherrington, whose investigations have contributed so largely to the clearness of our understanding as to the physiology and mechanism of the knee-jerks, announces, as the result of further studies, chiefly experimental, facts confirmatory of his original observations as contained in a paper contributed to the "Proceedings of the Royal Society," reference to which will be found in the ANNUAL for 1893.

Reynolds discusses analytically the various theories as to the causation of this phenomenon, referring to the experiments and conclusions of Tschirjew, Brissaud, Waller, Gowers, de Watteville, Prévost, and others.

The paper of Phelps is a practical *résumé* of the better-known physiological and clinical facts bearing upon the significance of the knee-jerk in health and disease. He found, in examining one hundred healthy individuals of both sexes and various ages, that the knee-jerks were completely absent in one and scarcely discernible, or very slight, in eleven others. Buzzard, on the other hand,

reiterates his well-known opinion that absence of the knee-jerk is always of pathological significance.

Ferguson writes entertainingly and instructively upon some of the rarer conditions which stand in a causative relationship to abnormalities of the knee-jerk. He cites examples in support of Seguin's statement that bromism will induce an exaggeration. Shock and other emotional causes will also produce variations of more or less persistence. He refers to the return of the knee-jerk in tabes following hemiplegia, and states that intoxication with alcohol will cause a return also in a tabetic patient. He records cases of absent knee-jerk in emphysema and whooping-cough, confirming Hughlings-Jackson's observation that supervenosity may induce a loss of the knee-tendon reflex.

These six papers present a fairly comprehensive and practical *résumé* of all that we know upon the subject.

Vertigo.—McVey⁸⁰¹_{Apr.} relates the history of a music-teacher in whom symptoms of intense vertigo were induced by the low base notes of a piano, indicating an origin in irritated auditory centres from long-continued labor as a music-teacher. Miles⁸⁶⁸_{Mar., June} recognizes five chief varieties which include the well-known types, the etiology of which is generally recognized. "Vertigo and Giddiness Due to Disease of the Horizontal Semicircular Canals" is the subject of a paper by Lake.⁶_{Aug. 19} "Some Interesting Cases of Vertigo" is the title of a paper by Riggs. In a discussion of this subject before the Medical Society of Virginia, Dabney⁸¹_{Nov.} recommends morphia in doses of $\frac{1}{10}$ grain (0.006 gramme) for the relief of vertigo, especially of renal origin. Bedford Brown emphasizes the importance of urinary analysis in all cases of persistent vertigo, he never having seen a case of chronic nephritis or diabetes mellitus in which this symptom was not present.

Hydrocephalus.—Choupin²²⁸_{Nov. 16, '92} reports a case of essential chronic hydrocephalus commencing at the age of 15 in a boy previously healthy, who died two months after the onset of symptoms. Cenas, who performed the autopsy, found no other lesion. Choupin could find in literature only three other similar cases, to which may be added a fourth, recorded by Robertson,²¹⁸_{Dec., '92} occurring in a girl 15½ years old, whose symptoms began about a year or so before her admission to the hospital. The possibility that autopsy may show a grosser lesion in this case is to be considered before

designating it one of pure hydrocephalus. Bondurant²⁴²_{May} places on record an hydrocephalic cranium of unusually large size, measuring twenty-nine inches in its horizontal circumference. Kennedy⁶⁶³_{Mar.} contributes a paper on this subject.

Therapeutic Innovations and Diagnostic Miscellany.—J. Leonard Corning, ⁵⁹_{Dec. 21, '92} in a paper advocating the localization of the action of remedies upon the brain, recommends a method of intra-nasal application of certain alkaloids (morphia, atropia, cocaine, etc.), with simultaneous compression of the internal jugular veins. Several histories are given illustrating the advantages of this method in the relief of headache, insomnia, cerebral neurasthenia, and allied conditions. There can be no question as to the value of the method, but it is not without objection in that a drug habit may be thus induced, especially with cocaine,—a fact attested by the editor's personal experience with three cases originating in this way. Corning underestimates this danger in his statement that "there is little or no danger of this habit."

H. Campbell¹⁶⁶_{Jan.} contributes a paper bearing upon the significance, clinically and pathologically, of various cephalic sensations known collectively under the term cereboria (*kopfdruck*, *pesauteur de tête*). These sensations are of various kinds, the most common being those of pressure, weight, and constriction. They most frequently are clinically associated with neurasthenic states and intra-cranial syphilis. Among the minor causes, catarrh of the frontal sinus, errors of refraction, and ear disease are mentioned. The author does not mention melancholia, a condition in which sensations of weight and pressure in the head, especially the post-cervical and occipital region, constitute a most constant and valuable diagnostic symptom. An abundant bibliography adds to the value of the paper.

Erlenmeyer ⁴¹_{July 21, Aug. 4, 7, 10} delivered a very interesting address before the Psychiatric Association of the Rhine Provinces, advocating the use of surgical revulsives in diseases of the brain and nervous system. Among such revulsive agents he mentions penciling with iodine, dry cups, vesication, cautery, seton, and the use of antimonial ointment. He thinks too much attention has been given to symptom remedies, such as phenacetin, sulphonal, etc., to the neglect of these agents. Experimental studies established the fact that the latter acted in a threefold capacity on the nerves,

the vessels, and on tissue-change. Iodine, as ordinarily used, was too weak. He had used the following with great success: Pure iodine and iodide of potassium, each 1 part; distilled water, $2\frac{1}{2}$ parts; tincture of iodine, 15 parts. He found it invaluable for the relief of all forms of pain. In meningitis and cerebral congestion the patient was much benefited by vesication of the shaven scalp or back of the neck.

Other papers upon miscellaneous subjects are by Brodie, ²²_{Nov. 22, 72}
Dalby, ⁶_{Feb.} and Mann. ¹²¹_{Mar., Apr.} .

DISEASES OF THE SPINAL CORD.

By H. OBERSTEINER, M.D.,

VIENNA.

HÆMATOMYELIA.

Minor, of Moscow, ³⁶⁸_{v.24} calls attention to the relations which may exist between central hæmatomyelia and syringomyelia. It has frequently been observed that, following spinal trauma, central glioma and syringomyelia have been developed; a much longer time being naturally required for the gliomatous development. If, however, the spinal symptoms occur immediately after the trauma, hæmorrhage of the spinal cord must be suspected. As these hæmorrhages almost always affect the gray substance, all the separate symptoms of syringomyelia may be induced by them. Moreover, traumatic hæmorrhages of the medulla may evolve hæmorrhagic cysts, which would then have compact surrounding capsules of connective tissue, and might form the starting-point for central gliomatous degeneration. Such a pathogenic process may also occur when the central hæmorrhage is not induced by trauma. In four cases, in which the organic lesion of the spinal cord undoubtedly resulted from trauma, Minor found many symptoms closely resembling those occurring in syringomyelia; for instance, the characteristic dissociation of sensibility. As the patients in question are still living, the diagnosis has not been confirmed. In a fifth case of traumatic hæmatomyelia, death occurred after several days; the autopsy revealed a tubular hæmorrhage throughout the entire gray axis of the spinal column.

T. Collins ¹_{Dec.10,72} presents the case of a previously-healthy miner, who was compelled to work in compressed air. Ten weeks before he had suddenly lost the power of movement in all parts of his body, excepting the head, but not consciousness. He remained in this condition for four weeks, being unable to move his hands or his feet. At that time he also suffered greatly from pain, which he described as burning or scorching. At the end of four weeks

(B-1)

he was able to walk about a little. At the time of the attack he also had some trouble with his sphincters. Collins thought that the case was one of hæmorrhage into the spinal cord.

I would also here call attention to the case of Raymond, of Paris.¹⁰⁹⁰_{Mar. 31} A girl was operated upon for caries of the cervical vertebræ, but died fifteen hours after the operation. Upon post-mortem examination, hæmatomyelia of the lower cervical cord was discovered, which, in Raymond's opinion, had existed for some time, but had probably been increased by the operation.

Manly²⁴²_{July} reports more than seventy cases of trauma of the spinal vertebræ, with fifteen autopsies. He emphasizes the fact that the medullary substance of the spinal cord is but very slightly vascular; for instance, in penetrating directly into the spinal cord of a dog with a needle, and causing injuries and lacerations, no true hæmorrhage occurs; from this it may be inferred that a direct primary hæmorrhage of the medulla very seldom occurs as a result of trauma. In 642 cases of severe injuries of the vertebral column,²⁰⁵³ not a single case of primary uncomplicated hæmorrhage into the medullary substance is noted, although a considerable number of extra-theal extravasations of blood within the vertebral walls are recorded. The most common seat of traumatic hæmorrhages is outside the dura mater. Anderson, of Glasgow,²¹³_{Apr.} in a man who had had all four extremities paralyzed, following a fall, infers a hæmorrhage, probably extra-dural, the relatively rapid and complete recovery seeming to verify this diagnosis.

SYPHILIS OF SPINAL CORD. •

In a comprehensive article, Goldflam, of Warsaw,⁸⁸²_{p. 41} alludes to the frequency of true syphilitic affections of the spinal cord (not considering tabes, etc.), and especially of meningitis syphilitica. These syphilitic diseases mostly present themselves soon after infection (one to three years), and not as late as is generally thought. He also quotes a case of syphilitic anterior poliomyelitis.

Gilles de la Tourette and Hudels, of Paris,⁴⁵²_{No. 1} give the following description of typical syphilis of the spinal cord, which is not, however, exact for all cases: The early period is not clearly defined, but is marked by fatigue, stiffness of the legs, and slight urinary disturbances; later, true paraplegia occurs, which is, however, seldom complete, as the upper extremities and the eye-

muscles are usually free; there is often pain, generally fulgurant. Antisyphilitic treatment is usually of no avail, probably because the primary disease (arterio-sclerosis) has already induced degeneration of the pyramidal tracts.

Kuh, of Chicago, ¹⁰⁰⁵_{2.2.10.6}, who has, under Erb's supervision, made a general study of the literature of myelitis syphilitica, with the addition of several of his own cases, also states that the majority of cases of myelitis resulting from syphilis are recognizable by certain clinical symptoms, as has also been stated in detail by Erb. (See 1893 series of ANNUAL, Section B.) This clinical type also appears to correspond with an identical pathological process; that is to say, an infiltration proceeding from the small vessels, having the peculiarity of affecting certain horizontal layers of the spinal cord to a uniform degree. The vertical process, in the majority of cases, becomes localized in the dorsal cord, much more rarely in the lumbar cord, and only exceptionally in the cervical cord. The variations in the otherwise identical symptom-complex are made clear. B. Sachs, of New York, ²⁴²_{May} does not fully agree with Erb's picture of syphilis of the spinal cord. According to his experience the following symptoms are especially characteristic of this affection: 1. The usual distribution of the disease over the greater portion of the cord, involving in some cases the cervical, lower dorsal, and lumbar cord. 2. The relatively slight intensity of the morbid process as compared with the extensive area involved, as evidenced by the preservation of some of the functions of the cord with complete loss of others. 3. A rapid dwindling of some of the symptoms and a very chronic persistence of others. 4. The very frequent history of other symptoms pointing to specific disease in the same, or in other parts of the central nervous system. The pathological process in the spinal cord usually progresses slowly; it has a remarkable tendency to increase for a time, and then, whether as a result of treatment or not, to recede, and then possibly to increase with renewed force.

Oppenheim, of Berlin, ⁴_{Aug. 20} is of the opinion that Erb's attempt to nosologically determine the limit of the symptom-complex of syphilis of the spinal cord, and to consider it as a disease, will meet with great difficulties, and will not be confirmed by the pathological anatomy. We must admit that the true prototype,

the principal form of spinal lues, is the universal meningo-myelitis syphilitica: a diffuse inflammation and neoplasm originating in the spinal meninges, having the tendency on the one side to extend to the roots, and on the other side to penetrate from the periphery into the spinal cord. Oppenheim believes that Erb's syphilitic spinal paralysis forms only one stage in the progress of this disease, and that it represents the type of the clearest, relatively speaking, cases of this kind, with predominant spinal localization; but that it does not form a disease *sui generis*. Since, however, this stage has been so frequently observed by Erb as to form a total sufficiently imposing to lead him to regard it as a special disease type, it may be inferred that it is the stage in which the patients are still able to walk and to travel, and, therefore, able to consult that eminent physician. Moreover, the symptom-complex described by Erb is in no way characteristic of syphilis. Any other diffuse diseased condition of the spinal cord, and especially all cases of incomplete transverse myelitis, may give rise to these same symptoms.

Charcot ³⁵_{June 28} calls attention to a symptom occurring in the initial stages of syphilitic myelopathies, which is, diagnostically, of great importance. It consists of nocturnal rachialgia, pains in the cervico-dorsal and then in the dorso-lumbar region, always occurring at the same hour during the latter half of the night, and ceasing after some weeks, upon the onset of the spastic paraplegic stage. It is clear that this symptom is highly important from a therapeutic as well as a diagnostic stand-point, since it permits of prompt measures against the farther progress of the meningomyelitis. Londe, of Paris, ³¹_{July 20} reports a case of nocturnal rachialgia. Frank R. Fry, of St. Louis, ⁹⁸_{July} describes three cases of syphilitic disease of the spinal cord, with special reference to the sensory symptoms. In all of these cases he found, in the lower portions of the body, loss of the sense of pain and temperature, while that of touch remained almost undisturbed. Syphilitic myelitis rarely occurs in the form of ataxic paraplegia, an affection usually considered as a combined disease-process in the posterior and lateral columns. Potts ¹¹²_{Nov., '92} had occasion to observe the case of a man, aged 37, in whom, one year after syphilitic infection, symptoms of pronounced ataxia, and of paresis of both lower limbs, vesical and rectal paralysis, and pains in the back, occurred. Antisyphilitic

treatment quickly resulted in improvement, and after two months the patient was discharged cured. According to Kowalewsky, of Charkow,⁷⁵_{No. 12} the following points referable to syphilitic spinal paralysis stand forth clearly: Paralysis spinalis syphilitica occurs more rarely than tabes, but is nevertheless a disease of frequent occurrence, generally affecting men between the ages of 30 and 45 years. The disturbances of the bladder, and often of the rectum, are usually of a spastic nature. Heightened reflexes of the lower extremities following thermic irritation, especially as regards heat, but often as regards cold, are particularly noticeable, being more pronounced than in any other disease of the spinal cord. It is also worthy of notice that the psychophysical reaction consequent upon pain and sensory impressions does not appear to be at all changed in true syphilitic paralysis (especially as regards the sensation of pain); it is very much retarded in tabes. Glorieux⁶²_{Aug.} is also inclined to accept a special form of syphilitic spinal paralysis. He especially coincides with the opinions of Kowalewsky, which he has confirmed in every particular, except that of the frequency of the disease. He administers to the patients an average of from 3 to 4 grammes (45 to 60 grains) of iodide of potassium, insisting upon absolute repose in bed, and advising a glass of Hunyadi Janos each morning. In the opinion of Sottas⁹²⁷_{Apr. 16} the pathological anatomical changes in the spinal cord, in syphilitic paraplegia, are as follow: The vessels of the pia mater first become diseased (small miliary gummata also being often present), and finally become entirely obliterated. There is a softening of the corresponding region of the cord, with consecutive degeneration in both an upward and downward direction, sclerosis finally resulting through proliferation into the interstitial tissue. Lamy⁴⁵²_{v. 2} has met with similar results, but his detailed clinical and anatomo-pathological work was unfinished when this article was written; it will be fully referred to in our next year's issue.

In the case mentioned by Ewald, of Berlin,⁴_{No. 12} a diagnosis of tabes was made during life; the pronounced disturbance of thermic sensibility and the appearance of a suppurative inflammation of the knee-joint were striking. The post-mortem, however, showed the absence of the anatomical changes consequent upon tabes, but, on the contrary, all the indications referred to an alteration in the vessels, having entirely the character of a syphilitic endarteritis;

there was, furthermore, a thickening of the intra-medullary septum, with degeneration of the nerve-fibres, particularly in the posterior columns. Gilbert and Lion, of Paris,⁹²⁷ state that it would be erroneous to refer syphilitic myelitis in general, and syphilitic paraplegia in particular, in all cases to a syphilitic endarteritis, with progressive softening and sclerosis. Various processes induced by syphilitic infection in the spinal cord may, on the contrary, give rise to these symptoms. Déjerine, in the discussion, remarked that he, as well as Sottas, in no way meant that endarteritis syphilitica represented exclusively the anatomical condition, albeit in those cases in which the paraplegia occurs quite suddenly in otherwise healthy individuals, and when no tendency toward cure is shown and death occurs after a period of varying duration, a similar condition of endarteritic softening of the spinal cord may always be inferred. With this discussion the question of the anatomical process in syphilitic myelitis was closed for the time being. We shall certainly frequently meet with the well-known vascular changes, and, when met with, they will furnish unmistakable evidence of the syphilitic nature of the affection, though their absence cannot be considered as a proof that the disease is not syphilitic.

Friedmann, of Manheim,¹⁰⁰⁵ calls attention to a typical form of spastic paraplegia in children, which is not to be confounded with congenital spastic paraplegia. This disease has an hereditary syphilitic basis, and is clinically characterized by the possibility of complete cure, the tendency to recurrence, and the absence of brain-symptoms. It greatly resembles Erb's syphilitic spinal paralysis; in fact, perhaps represents the infantile form of this malady. In order to demonstrate this condition, two detailed histories of cases are given.

A certain form of spinal muscular atrophy, according to Poussard,²⁰⁵⁴ bears a great resemblance to the Aran-Duchenne type, although materially differing from the latter in that pain and pareses precede the atrophy. The affection is probably referable to a primary alteration of the vessels, which is not, however, of the character of a syphilitic arteritis, although the patients are always syphilitics. It rather appears as a very pronounced nuclear infiltration of all the vessels of the pia mater spinalis and of the spinal cord, particularly in the cervical region and in the anterior (ventral)

portions of the spinal cord. The ganglion cells of the anterior horns are greatly atrophied, especially in the cervical enlargement of the cord. The changes are less pronounced in the white substance. Peripheral neuritis, particularly in the nerves of the upper extremities, has also been observed.

Richter, of Dalldorf, ⁷⁵ describes a case of progressive paralysis, combined with diffuse syphilitic spinal meningitis. The syphilitic infection dated back to twenty-eight years before the beginning of the paralysis. Kasimir ²⁰¹² observed a very rapid improvement in a case of myelitis syphilitica after the use of mercury and iodide of potassium.

MYELITIS.

Steel and Williamson, of Manchester, ⁶ have had under observation a peculiar case of acute myelitis, which, owing to the sudden onset of the symptoms, had the appearance of hæmato-myelitis. The case in question was that of a girl, aged 13, who, while apparently in good health, was suddenly unable to move her arms; one hour later the legs were also paralyzed; there was retention of the urine, and soon after the intercostal muscles became paralyzed, so that breathing was rendered difficult. With some other symptoms, analgesia and thermo-anæsthesia below the seventh left rib and hyperæsthesia of the right leg occurred. Forty-two days after the beginning of the disease the girl died, having typhoid symptoms. No trace of hæmorrhage was found in the spinal cord, but there was diffuse myelitis, involving, principally, the gray substance of the lower cervical region and the upper dorsal portion. The left posterior horn was especially affected, corresponding to the disturbance of sensibility on the left side. The sudden appearance of paralysis might also have been accounted for by stoppage of the spinal arteries, occasioned by emboli, or also by the presence of micro-organisms. Although these were looked for, none could be found.

Watson; of Torquay, ⁶ gives an account of a case of acute myelitis resulting in complete recovery, which is certainly of unfrequent occurrence. The patient was a male, aged 43, the cause of the trouble being probably a long stay in a damp locality. The first symptoms were a feeling of numbness in the feet and retention of urine. Later on, the right leg became entirely paralyzed and

the left one almost entirely so; there was no plantar or cremaster reflex on either side; both patellar reflexes were increased, but more so on the right than on the left side; ankle-clonus well marked on both sides. Under treatment by iodide of potassium his condition improved until, after two months and a half, he was dismissed cured.

Sänger Brown, of Chicago, ⁸⁶⁶_{Sept., '92} describes two cases of acute myelitis, and is of the opinion that in two-thirds of all such cases syphilitic infection is the primary cause. Mahokian, of Trapezunt, ²⁰³⁸ observes that affections of the optic nerve may occur in acute myelitis, as well as in other diseases of the spinal cord. Such atrophy of the nerves of sight may most likely be referred to vasomotor influences, caused by a lesion of the cervical sympathetic, resulting from changes of the sympathetic centres in the spinal cord.

In a case of myelitis(?) in a soldier, Kirchner, of Osna-brück, ⁴_{Nov. 21, '92} employed the suspension treatment, with the best results. During three months fifty suspensions were made, and the patient was discharged completely cured.

Charles K. Mills, of Philadelphia, ¹¹²_{May} gives an account of the various forms of paralysis, peripheral as well as central, which may arise as sequelæ of parturition, and are to be referred to a myelitic process. He is of the opinion that myelitis, as well as meningitis, encephalitis, or neuritis, may occur in the puerperium, consequent upon infection. He, personally, can only refer to a single case, which is of interest from the fact that the woman was addicted to alcoholism, a predisposing condition thus being present, as syphilis or tuberculosis is present in other cases. The symptoms and treatment of compression myelitis consequent upon caries of the vertebra are discussed by Horsley, ¹⁰⁷⁷_{Mar. 16} who directs particular attention to the condition of the peridural tissue in the vertebral canal, and recalls the fact that abscesses extending backward from the vertebra are usually divided into two lateral sacs by the ligamentum vertebra-rum posterius, which only exists in the middle line. It is important to note that pain is nearly always absent in compression of the spinal cord from caries, while in all other forms of compression (neoplasms, etc.) it is a prominent symptom. In the localization of the disease the motor paralyses are less decided than the disturbances of sensibility; especial attention should, therefore, be

directed to the latter during examinations, care being taken, at the same time, to note whether they may result from the injuries along the true course of the spinal cord or from compression of the posterior roots. He also strongly recommends Schmaus's test as to the secretion of perspiration after an injection of pilocarpine. The prognosis in persons over 50 years of age is mostly unfavorable. The best method of treatment is elastic extension of the body in the recumbent position. In all cases, however, in which an abscess is diagnosed, operative measures should be resorted to at once. After the cavity of the abscess has been emptied and cleansed by means of the curette, it should be disinfected with a 1-to-500 solution of corrosive sublimate. Improvement is frequently marked about fourteen days after the operation, but sometimes is delayed much longer.

Daxenberger²⁰⁵⁵ cites a case of chronic compression of the cervical portion of the spinal cord due to a previously-cured caries of the first thoracic vertebra; the principal symptoms of this decidedly chronic case were atrophic paralysis (principally of the left forearm and hand), scoliosis, and dissociation of sensibility, leading to a false diagnosis of syringomyelitis. This case is also worthy of attention from an anatomo-pathological stand-point, since decided evidences of secondary degeneration were found extending downward from the point of compression, particularly pronounced in the posterior columns.

The great importance of infectious injuries of the spinal cord in the development of acute transverse myelitis is demonstrated by the experiments of Bourges⁴⁵⁷ and Vincent.⁴⁵⁷ The former injected rabbits with the coccus of erysipelas, the latter with typhus bacilli, acute and diffuse myelitis developing in both cases, the large cells of the anterior horns also being destroyed; the condition might, therefore, as well be termed anterior poliomyelitis. The case quoted by L. von Wedekind⁵⁹ also belongs to the class of infectious myelitis, an acute form of the disease developing during a protracted convalescence from influenza and scarlatina. Cases of myelitis gonorrhœica must also be included in this class. Leyden, of Berlin,¹¹⁴ writes comprehensively concerning this affection, and describes a case with autopsy. The symptoms (paraplegia and analgesia, with thermo-anæsthesia, as well as paralysis of the sphincters) developed with unusual rapidity.

Owing to the exclusion of certain sharply-defined forms of the disease, chronic myelitis is becoming more and more restricted, so that Oppenheim regards diffuse transversal chronic myelitis as one of the most rare diseases of the spinal cord. A case which may be here included, but which, however, is without any post-mortem description, has been described by Loewenberg, of Berlin.²⁰³⁸

F. Schultze, of Bonn,¹⁰⁰⁵_{v.4,p.258} has observed scleroderma in myelitis dorsalis. The changes in the skin were limited to the paralyzed lower members; in the diseased regions the skin presented a smooth and shining appearance, and could not be lifted up in folds. The author is inclined to consider a chronic arteritis as the promoting cause of the scleroderma, without, however, its being necessary to suppose any special trophic fibres or centres.

Nonne, of Hamburg,³⁶⁸_{v.2,N.o.25} describes the frequently-observed spinal diseases occurring during the course of a pernicious anæmia. He cites two new personal cases and is of the opinion, already advanced by Lichtheim, that we have not to deal with a toxic substance pervading both the blood and the nervous system, but one affecting only the spinal cord. This still-obscure poison usually affects the posterior columns of the spinal cord, and is in this respect similar to other poisons (ergotin, lead, alcohol, the toxic agent of pellagra, and of lathyrismus).

SYRINGOMYELIA.

The study of syringomyelia has been pursued with great energy during the last few years, and this formerly totally unknown trouble of the spinal cord is now one of the most minutely studied. Its etiology, pathology, anatomy, and particularly its symptomatology, have been clearly described in an almost unlimited number of works; it was even affirmed that syringomyelia was the one disease of the spinal cord which could be most easily and certainly diagnosed. Finally, however, a reaction occurred, and reports are now numerous of cases in which it was impossible during life-time to establish a diagnosis of syringomyelia.

Critzmann, of Paris,²⁰⁵⁶₂₈ distinguishes three forms of syringomyelia. (1) Aran-Duchenne's type, with predominance of progressive muscular atrophy; (2) Morvan's type, with predominance of the well-known trophic disturbances; and (3) latent syringo-

myelia. To these may also be added cases which cannot be positively designated as latent, but which, nevertheless, present certain symptoms of syringomyelia; while it is impossible, or nearly so, to establish the true diagnosis. In a case reported by Pellizzi, of Regio-Emilia,⁵⁹¹_{v.13} syringomyelia was combined with pellagra. The patient was a male, aged 46 years, in whom a painful swelling made its appearance upon the neck, but soon afterward disappeared, upon which progressive paralysis of both legs occurred, with pellagrous erythema upon the outer sides of both hands, and, later on, the characteristic psychic disturbances peculiar to pellagra. In the further progress of the disease it presented more and more the character of transverse myelitis,—progressive spastic paraplegia of the lower extremities (a frequent symptom of pellagra as well). The upper extremities remained unaffected, as regards mobility, while the sensibility was only slightly diminished; there was a total absence of trophic disturbances of the skin and muscles, if we except the swelling in the neck first mentioned. The absence of disturbances of the rectum and bladder is also striking, as well as the slow progress of the disease (five years). Upon post-mortem examination the upper third of the cervical cord was found almost entirely degenerated, through glioma, and from there downward, behind the central canal, a hollow cavity of varying dimensions was found, extending to the lumbar portions of the cord. The syringomyelia in this case did not remain latent, while the symptoms present did not at all correspond with the well-known type of this disease. In the case quoted by Lépine,²¹¹_{Dec. 4, '92} the three well-known principal symptoms of syringomyelia were also hardly recognizable. The patient, a man aged 38 years, had the year before lain in the wet grass, while intoxicated; thereupon he had icterus and anasarca, lancinating pains, paralysis of the lower extremities; patellar reflex was absent; there was a slight disturbance of sensibility over the upper extremities and paralysis of the extensors. Death resulted from peritonitis. At the post-mortem there was found a glioma of the spinal cord, with central softening and segmentary alcoholic neuritis.

Oppenheim, of Berlin,³⁶⁸_{v.2} is not of the opinion that the variations in the clinical type of syringomyelia can be explained simply by the localization of gliomatous processes in the spinal cord. He particularly calls attention to cases the entire, or almost entire,

progress of which is characterized by tabetic symptoms. A male patient, aged 40, suffered from progressive disturbance of sight, with pain and weakness of the legs; later, girdle sensation, numbness of the soles of the feet, unsteady gait, and weakness of the bladder. Still later on, diplopia, atrophy of the optic nerves, reflex rigidity of the pupils; patellar reflex absent on the left side; anæsthesia and thermo-anæsthesia over the left half of the trunk. Finally, symptoms of dementia paralytica. At the autopsy diffused glioma in the spinal cord, as well as gray degeneration of the posterior columns.

The three cases of non-typical syringomyelia observed by Bernhardt, of Berlin,³⁶⁸ point to several facts insufficiently noted, as a rule. In the first case we have tactile and pressure sensations, among the disturbances of sensibility; the appearance of bulbar symptoms (difficulty in swallowing, paralysis of the velum palati) and periodical hæmoglobinuria. In the second case there is a certain analogy to Brown-Séquard's unilateral paralysis; hyperidrosis of the face also occurred on the side opposite to the diseased side of the spinal cord. These two cases, as well as the third, less noteworthy, occurred in female patients. No autopsy was made in any of them.

In two cases quoted by Mann, of Breslau,³²⁶ especially in the first mentioned, the entire symptomatology of tabes was clearly observed, together with unmistakable symptoms of syringomyelia. This case is also worthy of mention, because the nervous symptoms followed the extirpation of a tumor of the breast. In both cases frequent and pronounced choreic movements occurred.

Other cases of syringomyelia are cited by W. C. Krauss, of Buffalo⁶¹; four cases by J. Bernstein⁵⁵¹; by Lloyd, of Philadelphia,¹¹² the latter with autopsy and minute microscopical examination of the spinal cord; by Taylor,⁶ one case, also with carefully-detailed post-mortem results. The arthropathic conditions of syringomyelia have also been the subject of special notice. Charcot gives the following exact type of these affections⁷³: They occur spontaneously, without trauma, sometimes very suddenly. Without fever and without pain, the joints and soft periarticular regions swell, the ligaments relax, the joints become loose, and luxation takes place. Upon moving the joints a crackling sound is heard; there is total absence of pain during their manipulation.

While in tabetic arthropathy the lower extremities are usually affected, in syringomyelia the upper extremities alone are involved (shoulders, elbows, etc.). Occasionally these arthropathic conditions may constitute the primary symptoms, although generally they only occur during the progress of the disease. From an anatomical stand-point, Charcot makes a distinction between the rare atrophic form and the usual hypertrophic form. Cases of this nature are mentioned by Nissen,²²⁶ Sokoloff,³⁰¹ Gessler,¹⁸³ and Weil.⁶⁵⁰ Sokoloff is of the opinion that such diseases of the joints occur in about 10 per cent. of all cases of syringomyelia. The arthropathies occurring in syringomyelia and tabes are distinguishable from arthritis deformans, in that in the former cases the osteophytes are not only developed in the joint-capsules, but also occur outside of them.

Graf⁷⁶¹ has collected 35 cases of diseases of the joints in syringomyelia, among them 4 personal cases. A morbid change in one or more joints occurs more frequently in syringomyelia than is generally imagined; certainly, in not less than 10 per cent. The articular complications commence at an early period of the disease, more frequently in the upper than in the lower limbs (51 joints affected, 39 in the upper and 12 in the lower limbs). This is probably due to the fact that the cervical and upper dorsal cords are usually most affected in syringomyelia.

Bruttan, of Dorpat,²⁰⁵⁷ has given an unusually exact and complete review of the literature of the subject. In those cases in which the symptoms of syringomyelia suddenly present themselves, especially when following trauma, hæmatomyelia may be suspected, since hæmorrhages in the spinal cord principally affect the central portion,—the gray substance. Minor, of Moscow,⁸⁶⁸ has observed four such cases. Autopsies, however, were not performed. La Vecchia, of Naples,⁸⁴ is of the opinion that the extension of the gliomatous process into the lumbar enlargement of the cord is not so rare as usually believed. Its identity with Morvan's disease and lepra anæsthetica cannot be positively shown. When, in syringomyelia, the gray posterior horns are principally affected, the typical symptoms of Morvan's disease present themselves; the typical form of syringomyelia is shown, on the contrary, when the anterior horns are chiefly affected.

Pitres and Sabrazès, of Bordeaux,²⁵ vainly attempted, in

three cases of syringomyelia, to find the leprosy bacillus. In one case a portion of a decidedly neuritic nerve was excised from the living subject. As the bacteriological examinations resulted negatively in all three cases, the authors conclude that syringomyelia and leprosy are substantially different affections, both in regard to their etiology and nature, notwithstanding the fact that some cases present a certain analogy in the symptoms. The differential diagnosis between these two diseases is sometimes very difficult. Pitres and Sabrazès⁴⁵²_{No. 2} have observed a case of "systematic nervous leprosy, syringomyelitic type," in which only the bacteriological examination determined the true affection. In the portion of nerve excised from the living patient the bacillus of leprosy was found in great numbers, limited, however, to the nerve-fasciculus itself, none being found in the perineurium, the intra-fascicular tissue, nor in the vessels.

Verhoogen³⁶³_{June 24} and Gombault¹⁰⁹⁰_{July 21} also emphatically deny the identity of leprosy and syringomyelia, while Zambaco¹⁰_{No. 24, 72, No. 19} as emphatically affirms it. Du Castel presented before the French Dermatological Society⁶_{Apr., '92} two patients, one attacked by leprosy while in India, and the other a woman suffering from syringomyelia. Notwithstanding an unmistakable similarity in the symptoms, he also considers the two affections as different. Eskridge, of Denver,¹⁰¹³_{v. 3} describes the case of a patient, probably suffering from syringomyelia, in whom there was a very pronounced contraction of the field of vision. Of the three cases seen by Müller, of Graz,⁵⁷_{Apr. 9} one is particularly noteworthy, from the fact that there was a very great diminution of faradic and galvanic excitability, even in those muscles presenting a normal appearance, and apparently in no way atrophic.

Rosenblath³²⁶_{v. 51} cites four cases of syringomyelia worthy of consideration, through the fact that the post-mortem results were given in all of them, and that in three the true diagnosis could not be established during life. The fourth case was the more interesting, as there was a complication of pachymeningitis cervicalis hypertrophica, which probably represented the primary affection, while the syringomyelia may be considered as a secondary lesion.

The case described by Raymond, of Paris,⁹⁴_{Aug.} was most carefully studied anatomically. The patient first noticed, during the year 1886, a most unpleasant sensation of cold in the legs, as though

they were constantly in cold water, and at the same time complained of slight paresis of the legs. After six months there was a stiffness of all four extremities and of the muscles of the chest, and later on urinary and rectal disturbances. At the beginning of the treatment, three years later (1889), there was atrophy of the muscles about the scapula and a pronounced increase of nearly all the reflexes (muscular and cutaneous). Sensibility remained intact. At this time a diagnosis of pachymeningitis cervicalis hypertrophica was made. The muscles of the extremities afterward also became atrophied, and it was only in November, 1889, when the limbs were already quite rigid, that a disturbance of the sensibility, in the form of hyperæsthesia of the right leg, occurred. After two years (October, 1891) there appeared, in certain circumscribed regions of the body, disturbances of sensibility, characterized by the well-known syringomyelitic dissociation. As the patient was extremely desirous to have the operation performed, and as the original diagnosis had not yet been modified, surgical intervention was decided upon. The dura spinalis was laid bare in the region of the fourth and fifth cervical vertebræ, and as it was being seized between the ends of a forceps it tore apart, as well as the tissue of the spinal cord itself, disclosing an intra-medullary cavity, from which at least two or three spoonfuls of fluid exuded. Upon the two following days the patient was able to move much more readily, but on the sixth day after the operation he died. A gliomatous neoplasm, with central softening, was found extending throughout the entire length of the spinal cord. In a patient seen by Oppenheim, of Berlin.³⁶⁸_{v.24} there suddenly appeared, after excitement and overexertion, feelings of numbness and paralysis of both arms and weakness of the legs. On the following day there was inability to walk. Improvement was followed by emaciation of the arms and numbness in the thoracic region. Later on, spastic paresis of both legs, particularly the left, slight hypalgesia and thermo-hyperæsthesia of the right calf and foot. No rigidity of the arms, but heightened muscular reflexes and atrophic paresis of the hand. Then severe pain in the left thorax and hypochondrium; finally, bulbar symptoms and œdema. The post-mortem showed atrophy of the anterior horns and pyramidal tract, with extension of the process in the upper chest region to the left posterior horn and the posterior roots. Oppenheim admits that he consid-

ered this case one of syringomyelia (glioma with central softening), but that the post-mortem examination showed it to be a typical amyotrophic lateral sclerosis.

Another case of compression myelitis, described by Daxenberger, of Erlangen, ¹⁰⁰⁵_{v.4, Nov. 1, 2} was considered to be one of syringomyelia at the Strümpell Clinic. Such cases, in which either the condition of syringomyelia could not be recognized during the lifetime of the patient, or in which some other affection presented the symptom-complex of syringomyelia, are most instructive, and I cannot sufficiently reiterate their value.

Gowers, of London, ¹⁰⁷⁷_{May 31} describes a case of syringomyelia, and adds to this a comprehensive clinical description of this disease. His patient was able to distinguish a sensation of warmth upon certain portions of the skin, while the susceptibility as regards cold was entirely absent at these points,—which furnishes a new proof of the fact that two special nerve-elements are involved in the sensations of heat and cold.

Pagenstecher ¹¹⁴_{v.21} found paresis, atrophy, and sensory disturbances in a patient, which led him to make a diagnosis of syringomyelia. The patient was born with a spina bifida the size of a hazel-nut; the first symptoms of paralysis occurred at her sixteenth year, and at the age of 26 the symptoms of syringomyelia were pretty sharply defined.

J. B. Coleman, of Dublin, ⁶_{Aug. 12} and Newmark, of San Francisco, ⁹_{July 22} report cases without post-mortem results; the latter is worthy of mention on account of a peculiar malformation of several vertebral spinous processes; the tenth dorsal was clubbed, the eleventh and twelfth dorsal and the first lumbar clubbed and bifid, the second lumbar like the tenth dorsal. Medullated fibres were also found in the retina. Both abnormalities are probably to be considered as defects of formation, which might in turn lead to the supposition of a neuropathic idiosyncrasy. In a case diagnosed by Hammond as syringomyelia, complete recovery was brought about by the use of the suspension method, combined with electricity and iodide of potassium, as indicated by Hays, of Oxford, N. C. ⁵⁹_{Jan. 7} This is probably the first case of the kind, and one may consequently infer that there was some error in diagnosis.

Oppenheim ³⁶⁸_{v.26} defends the opinion, too little concurred in, that, notwithstanding our exact knowledge of syringomyelia, cases

nevertheless occur, which, through peculiarities of the symptoms, either remain unrecognized or, at least, cause doubt as to the true diagnosis. There are, for instance, cases in which a diffuse spreading of the process in the lower thoracic cord causes symptoms corresponding more or less with those of transverse myelitis; higher up toward the cerebral region the process of destruction may be confined to one or both posterior columns, in which case the symptoms of syringomyelia will accordingly be more pronounced; yet, on account of the very evident symptoms in the lower half of the body, careful and exact examination of the upper portion may easily be entirely neglected. Oppenheim dwells in particular upon that group of cases in which the unusual simultaneous disease of the white substance markedly changes the symptoms, and most particularly upon one form, in which the symptom-complex is so closely allied to that of tabes that it might well be considered as a gliomatous pseudotabetic condition. He gives the history of a patient, aged 41, who presented all the symptoms of tabes, to which were added, later on, those of progressive paralysis. Upon post-mortem examination there was found, contrary to all expectations, a gliomatous process in the lower portion of the cervical enlargement of the cord, which extended to the lumbar enlargement. In the cervical cord the glioma was restricted to the region of the posterior columns and the posterior commissure, but in the dorsal cord it so extended that at about the middle of the thoracic cord the entire gray substance was involved. Lower down the gliomatous degeneration was confined to the left posterior horn, while, on the contrary, there was a degenerative process in the right posterior horn, presenting the type of tabes incipiens. In this case, therefore, the glioma was combined with tabetic degeneration in the posterior columns in such a manner that, clinically speaking, the glioma remained disguised under the typical symptoms of tabes.

As another atypical form of glioma we may mention the bulbar variety, especially those cases in which the affection is primarily developed in the medulla oblongata, and in which, in consequence, bulbar symptoms are first presented. I would, however, in this connection, warn against considering "gliosis medullæ spinalis" and "syringomyelia" as one and the same affection, as is so frequently the case. There are gliomata of the spinal cord

in which the latter is not yet softened centrally, and in which there is, consequently, no cavity-formation in the cord; but more frequently such central cavities exist in the medulla, and are in no way referable to a primarily-existing glioma.

Diseases of the larynx do not appear to be very rare in syringomyelia, but are frequently overlooked, according to Schlesinger, of Vienna.⁷⁵_{No. 20} These laryngeal disturbances are sensory or motor in nature. Sensory disturbances of the larynx, of a subjective character, are more rare; most frequently there is a diminution of laryngeal reflex excitability, also the well-known dissociation of sensibility. The motor anomalies present themselves, in the majority of cases, in the form of unilateral paralysis of the recurrent nerve, while in labio-laryngeal paralysis there is usually bilateral posterior paralysis, in consequence of which the respiratory act is, in the majority of cases, greatly influenced (inspiratory stridor); in paralysis of the recurrent nerve in syringomyelia phonation is principally affected. These laryngeal symptoms generally come on very gradually, and are highly chronic in nature. Schlesinger also observed, in three cases of syringomyelia (and in one of alcoholic polyneuritis), a peculiar disturbance of the sense of pressure. In these cases the sensation skin-pressure alone was entirely absent or, at least, very much diminished, while the pressure sensation in the more deep-seated regions did not show any variation from the normal.

On account of the particular difficulty of diagnosis, the case of E. Asmus, of Breslau,²⁷¹_{v. I, No. 6} which he minutely describes, is worthy of mention. The patient was a highly-hysterical woman, 26 years of age, in whom there was right-sided, sensory anæsthesia, and who presented (usually following menstruation) a vesicular eruption on the right side of the body. Repeated erythemas also occurred, with a slight diminution of motor power in the right upper extremity, and to a lesser degree in the lower extremity. Later, a psychosis presented itself, and the patient died in a rachitic condition. Muscular atrophy was not present, and, therefore, it was only possible to establish a diagnosis of hysteria, although occasionally a suspicion of syringomyelia was expressed. The post-mortem examination revealed a syringomyelitic degeneration of the gray commissure, beginning in the upper cervical cord and extending downward to the lower dorsal region, as well as an im-

portant lesion of the right posterior horn, lesser in the left posterior horn. The anterior horns were almost intact, thus explaining the absence of muscular atrophy.

H. Schlesinger, of Vienna, ¹¹⁸_{No. 49, 78}, ⁵⁷⁸_{Jan.} calls attention to the fact that, in syringomyelia, blisters on the skin very frequently occur, and that true pemphigus may also be found. He saw a case in which a clinical diagnosis of pemphigus foliaceus was made, while the post-mortem showed the presence of syringomyelia. He also warns against the confounding of syringomyelia with hysteria, which is quite possible when, in contrast to disturbances of sensibility, the other symptoms are less pronounced.

AMYOTROPHIC LATERAL SCLEROSIS.

Erben, of Vienna, ⁵⁷_{Jan.}, calls to mind the fact that in amyotrophic lateral sclerosis too little attention is usually paid to the bulbar and cerebral symptoms, and presents a case in which the latter, in particular, were very pronounced. P. Cavallo ⁵⁸⁹_{May 1} describes a typical case in a young man, aged 22, frequently exposed to cold. The very clear explanations of Oppenheim, of Berlin, ³⁶⁸_{v. 34} concerning the pathogeny of the disease are specially worthy of notice; they are illustrated by the histories of four cases, accompanied by the post-mortem results. His cases plainly show, through the bulbar symptoms, that the process begins in the motor conduction tracts (pyramidal tract), and only involves the motor-nerve ganglia later on. He also refutes the accepted opinion that the degeneration of the pyramidal tracts, in this disease, has its origin in the motor zone of the cerebral cortex, and insists that, on the contrary, the disease may begin in various regions of the cortico-muscular conduction path. He shows the difficulty of recognizing degeneration of the motor vagus nucleus (nucleus ambiguus) in the preparation, although very frequently involved. The hypoglossal nerve-ganglion appears to be most readily involved, but Oppenheim found, in three cases, a slight degeneration of the nucleus facialis, and in two a similar condition of the nucleus of the trigeminus. Case No. 4 is quite peculiar through the fact that the motor symptoms here appeared very suddenly (sclerosis lateralis amyotrophica acuta), combined with certain disturbances of sensibility (principally severe pains in the left thorax and hypochondrium). A corresponding invasion of the degenerative process into the pos-

terior horn and the posterior roots of the upper dorsal cord on the left side was observed post-mortem. Destrée and Le Bocuf,⁸⁶⁸_{Dec. 1, '92} in a case of amyotrophic lateral sclerosis (which, exceptionally, had begun in the lower extremities), had occasion to examine the spinal cord. They found pronounced atrophy of the anterior-horn cells (mostly in the cervical region, and less in the lumbar portion), complete degeneration of the pyramidal lateral columns and of the pyramidal anterior columns on both sides, while the remaining portions of the anterior lateral fascicula, and also the columns of Goll, were perceptibly affected, as also demonstrated by Marie. In the medulla oblongata the degeneration of the fasciculus longitudinalis posterior, mentioned by Muratoff, was also found.

In the case of a woman described by Krafft-Ebing, of Vienna,²⁸³_{Jan. 2} this affection occurred after repeated falls upon her back. The author calls attention to certain peculiarities of the case. The symptoms, also, first presented themselves in the lower extremities; the other unusual symptoms of optical atrophy, and of trophic disturbances (of the nails of the toes, decubitus), as well as cystic disturbances, were also noteworthy. T. A. Esteves¹⁰⁵⁰_{Nov., '92} cites four cases of amyotrophic lateral sclerosis. In one of these several large abscesses appeared.

Charcot⁹⁴_{Mar.} presented a case in which it was impossible with certainty to establish a differential diagnosis between amyotrophic lateral sclerosis and hysteria; perhaps there was a combination of both of these affections. Katz²⁰⁵⁸ describes two cases, one of which progressed very rapidly.

ANTERIOR POLIOMYELITIS.

According to Goldscheider,⁸⁴_{Apr. 1} examination of the spinal cord of a child which died of broncho-pneumonia, twelve days after the beginning of an acute anterior poliomyelitis, showed a diffuse inflammatory process in the entire spinal cord, particularly in the lumbar portion, which was not at all limited to the anterior horns. Since the case in question was one of diffuse acute myelitis, Goldscheider, in my opinion, is not justified in denying the actual localization in the gray substance of the anterior horns in acute anterior poliomyelitis; although he may advance, in support of his opinion, the fact that in such recent cases an autopsy is rarely made. Goldscheider's view may be right, inasmuch as the starting-

point in poliomyelitic disease of the spinal cord is not to be looked for in the nerve-cells, but is of true vascular origin. Lippmann, of Berlin,¹⁰⁰⁵_{Mar.15} is of the same opinion. He had under observation a child which, during the first few months of its life, suffered from a very severe attack of boils (several hundred); some days after the disappearance of the last boil, paralysis of the left arm and of the right hip occurred; soon after a new attack of boils began. The child died four months after the paralysis set in. It may be considered as certain that the spinal disease resulted from infection from the boils, which would form an additional proof of the opinion so energetically advanced by Marie, that spinal infantile paralysis is of an infectious nature.

The opinion advanced by Goldscheider, that the ganglion cells of the anterior horns are not alone primarily affected, as has been considered the case since Charcot's researches in anterior poliomyelitis, and that we have to deal rather with disease of the vessels, does not agree with the observations of Kahlden,⁷⁶⁸_{v.13} who also found the principal lesions in the ganglion cells; only those nerve-fibres in communication with the ganglion cells were deteriorated, the remaining fibres being intact. The question concerning the initial point of the well-known changes in the anterior horn, in advanced cases, as usually observed, is indeed difficult to determine.

Dauber, of Würzburg,¹⁰⁰⁵_{v.4,p.200} had the rare opportunity of examining the spinal cord of a child which died five days after the commencement of the disease. His observations led him to conclude that the affection in question was a primary inflammatory (probably infectious) disease of the gray substance of the spinal cord, in which both the supporting substance and the ganglion cells were involved, but that the process does not begin in the ganglion cells themselves, as believed by Charcot.

J. E. Graham has observed two cases of acute anterior poliomyelitis.²⁵⁷_{Apr.} Déjerine, of Paris,³¹_{Sept.22} describes an interesting case. The patient was a man, 43 years of age, who had muscular atrophy of all four extremities, that of the lower extremities being of spinal origin, consequent upon an attack of acute poliomyelitis during his third year, while the atrophy of the upper extremities began only five years ago. The latter was restricted to the muscles of the scapula and of the upper arm, and must, therefore, be regarded as myopathic; the absence of fibrillary twitchings, as well

as the elastic condition of the muscles, also speaks against a spinal origin.

In a male patient, aged 47, who had had, at the age of 11 months, infantile paralysis with atrophy of the right leg, with pes equinus paralyticus, progressive muscular atrophy of the Aran-Duchenne type occurred, beginning in the right hand. Four years later he died of cerebral hæmorrhage. Bernheim, of Nancy,⁹² found, at the post-mortem examination, a hæmorrhage in the left hemisphere; a regular, even diminution of the size of the spinal cord in the cervical region, and atrophy of both posterior horns. In the lumbar region the cells had almost entirely disappeared; there was slight sclerosis of the posterior columns, this being more marked in the lateral columns. Bernheim is of the opinion that the process, occurring during early childhood, had no direct relation with the similar pathological condition arising forty-six years later. There was undoubtedly some connection between the two maladies, which consisted, in his opinion, of a certain acquired or inherited vulnerability of the cells of the anterior horns.

The process in the spinal cord may generally be considered as at an end when the poliomyelitic focus has been established, although, in some cases, there may arise, in later years, additional atrophies of other extremities (as, for instance, when the diseased condition ascends from the lower to the upper extremities,—Raymond, Hagens, Quinquaud, Neumann, Oulmont); and there may also be, as in the cases of Déjerine and Bernheim, a secondary myopathic atrophy.

Barbe, of Paris,¹⁵² had under observation a man who, while yet a child, had a poliomyelitic paralysis of the left leg lasting for several months. After the age of 30 (two years ago) abdominal crises, pronounced constipation, and paralysis of the detrusor vesicæ, occurred, symptoms which Charcot considered as initial symptoms of tabes, and which might perhaps be referred to as inflammatory process in the lumbar cord, originating from the old disease focus.

H. Moyer¹¹⁵ quotes the case of a girl, aged 5 years, with spinal paralysis of the right upper extremity. The disease began in the usual manner, with fever, at the age of 9 months. The deltoid, biceps, supra- and infra- spinatus were alone involved; this case, therefore, is closely allied to the rare type of Remak, although the

supinator longus remained intact. Bikeles, of Vienna, ⁵⁷_{May 28} presents the case of a man, aged 48, in whom acute poliomyelitis was inaugurated by diarrhœa with violent tenesmus.

Huddleston, of New York, ⁵⁹_{Mar. 4} had the unusual opportunity of observing a child who, one hour before the onset of the disease, appeared to be in perfect health, and who was taken with slight convulsions, fever, and unconsciousness, which later were demonstrated to be the beginning of a poliomyelitis. A. Church, of Chicago, ¹¹⁷_{Dec., '92} calls attention to the great importance of recognizing the initial symptoms, which is, however, unfortunately, seldom possible. Graeme M. Hammond, of New York, ²⁴²_{No. 1} finds that, upon the application of electrical treatment for a long time, it is often possible to bring about a great improvement in the condition of such muscles as have become atrophied during the course of poliomyelitic disease, and bases his opinion upon three cases.

SPASTIC SPINAL PARALYSIS.

As is well known, the special form of disease of the spinal cord, first described by Erb as spastic spinal paralysis, is not regarded by others (Marie, for example) as a separate affection, but rather as a symptom-complex. A. Schüle, of Heidelberg, ¹⁰⁰⁵_{v. 4, p. 161} however, concludes that spastic spinal paralysis forms a clinically well-characterized affection, easily distinguishable from other spinal diseases, the symptoms of which not only appear temporarily, but last throughout many years (as many as seventeen) with an unvarying distinctness. In the early stages, undoubtedly, the diagnosis is not easy, and it must always be expected that other symptoms may occur in combination with the typical symptoms of the affection (paresis, increase of tendon reflexes, and muscular tension, without disturbances of the bladder, etc.), which would lead to the inference of a true primary lateral sclerosis.

Strümpell, of Erlangen, ¹⁰⁰⁵_{v. 4} again calls attention to the familiar form of spastic spinal paralysis. He had under observation a man whose grandfather, father, two brothers of the father, and one of his own brothers were similarly affected. The patient had been entirely healthy in his youth; it was only in his 38th year that a difficulty in walking began to show itself, which progressed in an uncommonly slow manner. The author first saw the patient in his 54th year; at that time the condition consisted in spastic

rigidity of the lower extremities, consequent upon marked augmentation of the tendon reflexes (thus a spastic pseudoparalysis). Seven years later marked paresis of the lower limbs (without atrophy and without bladder disturbances) developed. As there was a perceptible disturbance in the sensation of cold in the calves of the legs, we may suppose that the process had extended, in a slight degree, beyond the pyramidal tracts. These cases may, therefore, be classed with the primary, hereditary, systematic affections,—as, for instance, the hereditary tabes of Friedreich. It is striking that only the male members of a family are usually affected, and this only at about the thirtieth year; the progress of the malady is very slow. Th. Whitton, of Reefton, New Zealand,^{257 July 18} describes two genuine cases of this rather-rare affection; he is of the opinion that concussion of the spine is one of the most frequent causes, but that the first symptoms only make their appearance from two to three years after the accident.

Espine^{187 Jun.} has observed the infantile form of spastic spinal paralysis in two girls. In both patients the upper extremities were also involved, while the intelligence remained normal; in the first case the muscles of the face remained unaffected, with the exception of strabismus; but in the second case, upon energetic movements of the hands, the face participates in these movements.

Laurent^{454 Jun.} has observed a young man who presented the symptoms of incipient spastic spinal paralysis. Treatment consisted of cauterizations of the spine and the administration of iodide of potassium. Improvement was soon noticeable; after two months and a half the patient left the hospital and has since (six months) remained well.

L. Newmark, of San Francisco,^{5 Apr.} comprehensively describes a number of cases of the family form of spastic paraplegia. In the first family two children of one mother have been affected since early childhood; the majority of the other children of this family show decided augmentation of the tendon reflexes, and a cousin is subject to epileptic fits and has paresis of all the extremities. In the second family, three brothers suffer from spastic paraplegia, which did not, however, develop until between the seventh and fourteenth years; in this family also augmented tendon reflexes are of frequent occurrence; it is, therefore, most probable that the paralysis results from a neurotic tendency. The

injuries received in delivery, frequently advanced as causing these affections, are probably of much less importance from an etiological stand-point.

TABES. DORSALIS.

Etiology.—Although the relation between tabes dorsalis and syphilis seems to have been pretty well decided, the existence of syphilis being proven in the majority of tabetic cases, there nevertheless remains a small contingent of unbelievers, under the leadership of Leyden.²⁰⁵⁹_{June 6} This relationship is constantly being indicated, however, and Sachs¹_{Aug. 12} brings forward the following points as demonstrating it: 1. The frequent occurrence of paresis with tabes, and of tabes in the course of general paresis. 2. The occurrence of symptoms in the course of tabes which are often due to syphilis,—ocular palsies, loss of pupillary reflexes, and even lightning pains. 3. The effect of mercurial and iodide treatment upon many of the symptoms of tabes.

Möbius⁶⁸_{Sept.} has recently made a special study of this question in tabetic women, and, basing his remarks upon thirty-nine personal cases, states that in all the patients a previous syphilitic infection was probable; if tabes exist without syphilis, the “tabetic virgin” must certainly be one day brought to light. The interval between the infection and the beginning of tabes was established, on the average, as a period of eight years. In the case cited by Déjerine, of Paris,²¹²_{Aug. 10} this interval was twenty-one years.

If the intimate relation between tabes and syphilis exist, as is justly accepted by the majority, it might easily be questioned why the mercurial and iodide treatment has so little result. Dinkler, of Heidelberg,⁴_{Nov. 16, 20} proves, according to the literature on the subject, that the idea that antisiphilitic treatment in tabes is useless or even hurtful is erroneous; he personally has found improvement of one or several symptoms in fifty-eight of seventy-one cases of tabes, after the use of mercury; there were no results in eleven cases, and only in two did aggravation of the symptoms occur. The general health was also usually improved; a gain of from 4 to 5 kilogrammes (8 to 10 pounds) in from one to one and a half months frequently occurred.

Concerning tabes in the female sex, Friedrichsen, of Wismar,²⁰¹² gives comprehensive statistics and quotes twenty-nine personal cases. The original connection between syphilis and tabes can

undoubtedly be proven; although sewing-machine operators frequently suffer from tabes, the sewing itself is more seldom the cause of the malady than their frequent syphilitic condition. Among his own cases he did not observe any crises clitoridis. The case of a tabetic woman becoming pregnant is worthy of notice: simultaneously with the pregnancy there was a rapid aggravation of the symptoms, and particularly a rapidly developing optical atrophy. The relatively frequent occurrence of *vitium cordis* in tabetics is not merely casual, but usually the common cause of both the tabes and the *vitium cordis* will be found to be syphilis. F. Schultze, of Bonn, ²⁰⁰⁰_{May 14, '98} is a decided advocate of the theory of a common syphilitic causative origin.

The tabetic arthropathies made known by Charcot's description are always of interest to neurologists, and, as they are not rare, we meet with a considerable number of published cases. Singer, of Vienna, ⁴¹_{June 29} makes known a similar affection of the knee-joint, characterized by the well-known peculiarities (very pronounced change in the joint on slight disturbance of the functions, passive mobility, and absence of pain). In the case brought to notice by Schilling, of Querfurt, ⁴¹_{July 18} the arthropathic condition of the left knee was caused by an unimportant traumatism. Davy and Blomfield, of Exeter, ¹⁸¹_{Dec. '98} describe two noteworthy cases of tabetic gonitis, both of the left side. Carter, of Birmingham, ²_{Nov. 24, '98} and A. E. Sterne, ⁵⁰_{Jan. 28} describe cases of ataxic arthropathy. In the latter case, in which the right knee-joint was affected, there was also dementia paralytica progressiva. Krogius ⁴⁹⁸_{v. 28} also describes three cases, in one of which the disease of the joint was one of the first symptoms of tabes. In the case mentioned by Londe, of Paris, ⁴⁵²_{No. 3} bilateral arthropathia coxo-femoralis occurred (with an interval of twenty months) during the course of the disease. The frequent coincidence of these symptoms with gastric crises is referred to. Maillard and Audéoud, of Geneva, ⁴⁵²_{No. 3} have met with tabetic arthropathy of the knee-joint in two cases. W. Rivingston, of London, ²_{Mar. 4} gives full details concerning fractures of the long bones in tabes, and describes five of his own cases, all from but slight causes, and all in the vicinity of joints. In two cases the fracture did not unite, both being of the neck of the femur; in three union occurred,—in two good, and in one imperfect. Hulke and Buzzard, in the discussion upon this article at the

Royal Medical and Chirurgical Society, introduced other cases; and Bennett suggested the name of "fracture due to slight causes" as being more appropriate than the usual term "spontaneous fracture." Fourmeaux, ²²⁰_{June 16} describes the case of a man in whom there were transverse fractures of both the upper thigh-bones without any apparent cause, the second fracture occurring after an interval of four months. The retarded consolidation with the enormous callous formation go toward proving a medullary cause for these spontaneous fractures. In fact, certain symptoms were recognizable upon careful examination (tactile disturbances of sensibility in the lower extremities and defective accommodation), which would indicate a pre-ataxic stage of tabes.

In a case seen by Pitres, of Bordeaux, ¹⁰⁹⁰_{May 16} the first symptoms of tabes presented themselves in 1875, consisting of difficulty in urinating, dysentery, and pain in the stomach. In 1880 lancinating pains in the legs began, followed by all the other well-known symptoms. At the end of 1885 he complained of a feeling as if the toes were dead during cold, while in the heat they became blue and swollen and pained greatly. In the year 1891 gangrene became fully developed in all the toes of the right foot and in the big toe of the left foot. In April, 1891, the patient died suddenly of suffocation, caused by some food having entered the larynx. Upon post-mortem, besides the usual condition of the spinal cord in tabes, a very marked degeneration of the corresponding peripheral nerves was present. Nevertheless, numerous apparently normal nerve-fibres were found. Pitres explains this through the fact that the process had been of old standing, and that the nerves had undergone a process of regeneration. Kornfeld, of Vienna, ⁸⁴_{Nov. 5, '92} mentions an interesting case of a tabetic patient having symmetrical gangrene of the toes, and who also showed the well-known dissociation of sensibility; so that syringomyelia might also have been suspected; there was, however, no muscular atrophy. Post-mortem showed, besides the sclerosis of the posterior columns, an acute neuritis of both nervi peronei, which was, no doubt, the cause of the above-mentioned symptoms.

Hudelo ⁸⁶⁵_{May 18} presented a male tabetic patient, with ulcerations both in the region of the right upper and the left lower jaw. The ulceration set in slowly in June, 1892, after all the teeth, with the exception of four, had fallen out. Phosphorous necrosis was out

of the question, and syphilitic ulceration as well, owing to the progress of the process, although the patient was proven to be syphilitic. These ulcerations are to be referred to a tabetic neuritis of the trigeminus, since complete anæsthesia of the face and mucous membrane of the mouth was present.

Lacaze's ³⁴⁸_{No. 1} case of tabes is worthy of attention through the fact that there existed a general muscular atrophy, and also on account of the occurrence of marked involuntary movements of the lower extremities and of the face during sleep. These movements partake of the character of chorea. Ehrenberg ²⁰¹² treats comprehensively of the symptoms caused by complications arising from the vagus and the accessorius in tabes (laryngeal crises, paralyses of the muscles of the larynx, etc.). An uncommon case of paralysis (incomplete) of the diaphragm in a tabetic female patient, aged 45, is cited by Gerhardt, of Berlin. ⁴_{No. 16} Cocking ²_{Jan. 14} cites two cases of ataxic paraplegia. In both cases the ataxia was very marked, but yet seemed to differ materially from tabetic ataxia. Syphilis, trauma, and the neuropathic tendency did not exist.

Semon, of London, ¹⁰⁷⁷_{Apr. 19} found, in a tabetic patient, total paralysis of the soft palate, also bilateral paralysis (complete on the left and partial on the right) of the abductors of the vocal cords, the patient, however, being still able to sing. Some of the facial muscles, the masseters and the temporals, are much wasted; the mouth hangs widely open, owing to the falling of the lower jaw.

Thimotheeff, of Kasan, ²⁰¹² adds two new cases to those already known, in which tabes was combined with Basedow's disease.

The relationship between tabes and dementia paralytica has been the subject of much remark. Raymond stated last year that clinical facts demonstrate that tabes and parietic dementia are frequently associated. The onset of the symptoms are often tabetic in form, while paralytic dementia closes the scene; both have a common etiology, dominated by syphilis and heredity. In both, the central lesions involve the same organic systems; so that Raymond considers it justifiable to ask whether they are not identical. A long-continued discussion followed on this point, of which a *résumé* has been given by Courtois-Suffit. ¹⁰⁰_{Jan. 14} However, no decided conclusion was reached. L. Stojanovich ²⁰¹² also discusses the subject in a thesis.

The unusual combination of tabes with epilepsy has been

observed by P. Blocq, of Paris.³⁵_{Aug. 16} The patient was a woman, aged 35, subject to epileptic seizures from her fourteenth year. Before the age of 15 she acquired syphilis. In November, 1891, headache and diplopia occurred, which gradually disappeared under iodide of potassium and mercury. This treatment was continued six months, and very soon after its cessation symptoms of tabes plainly appeared.

Wood, of Philadelphia,⁸_{No. 7} calls attention to peculiar pains in certain glands, which may occur in tabes from time to time, like other symptoms. Several hours before the onset of the attack the patient complains of a peculiar, uncomfortable sensation in the region in question, and suddenly very severe pain is felt, lasting several hours; the glands quickly swell, and the skin becomes reddened; the swelling and redness slowly disappear after a few days. Wood also calls attention to the frequency of diseases of the heart in connection with tabes, and mentions a case in which cardiopathy was the initial symptom. Soupault⁹²_{No. 2} found, in a tabetic patient, an hypersecretion of gastric juice (Reichmann's disease); he considers this a special form of "*crises gastriques*."

In a case of tabes combined with Basedow's disease, Marie and Marinesco, of Paris,¹⁰⁹⁰_{May 20} found degeneration of the ascending roots of the trigeminus and of the glosso-pharyngeal nerve. It is true that Basedow's disease is of bulbar origin, yet the authors do not venture to ascribe the appearance of these symptoms to degeneration of the ascending glosso-pharyngeal nerve-root (solitary fascicula).

Déjerine, of Paris,³_{No. 28} has again called attention to the fact that the symptoms of tabes dorsalis may be at least partially simulated by a peripheral neuritis, even without a diseased condition of the spinal cord. This is readily understood when we consider that in both cases we have to deal with a disease of the sensory nerves; in tabes their central portions are principally involved, while in peripheral pseudotabes the peripheral portions are usually the starting-point. In cases in which peripheral neuritis is rapidly developed, the following symptoms furnish the differential diagnosis of pseudotabes: very rapid progress of the disease; pain in the muscles proper and in the nerve-trunks; undisturbed pupillary reaction. The prognosis is usually favorable.

Hansell, of Philadelphia,²⁴²_{Apr.} discusses the possibility of the

early diagnosis of locomotor ataxy from the eye-symptoms. The conclusions are that transient ptosis, or external ocular paralysis, may be one of the earliest symptoms of locomotor ataxy. The Argyll-Robertson pupil, unioocular or binocular, may precede, for a variable length of time, the general symptoms. Idiopathic non-inflammatory atrophy of the optic nerve may be the first manifestation. Transient ptosis, or diplegia, Argyll-Robertson pupil, incipient optic-nerve atrophy, associated in an individual past middle life, of inherited neurotic tendency, are strong presumptive evidence of the first stage of locomotor ataxy. The anatomopathological process in tabetic ocular-nerve atrophy has been carefully studied by Popow, of Warsaw, ¹⁰⁰⁵_{v.4,p.270} who concludes that, at least in a case personally observed, the alterations in the ocular nerves progress from the periphery toward the centre (toward the brain), and that all the fibres of the optic nerve are not simultaneously affected, but that various systems follow one another.

Grasset, of Montpellier, ⁹⁴_{v.22} returns to his formerly-expressed opinion that Romberg's symptom is caused solely by a feeling of dizziness when the eyes are closed, and supports his opinion by the following facts: 1st. A blind tabetic patient often walks better than one who has his sight, undoubtedly very much better than the latter when his eyes are closed. 2d. When the patient is prevented from seeing his feet, for instance, by having a screen or an umbrella held horizontally against his chest, the inco-ordination symptoms become somewhat heightened, but Romberg's symptom does not occur. If there were only a disturbance of the muscular sense, there would be considerable swaying of the body as soon as the "control" of the eyes with regard to the feet was prevented. 3d. Romberg's symptom may be present when the muscle-sense remains intact, or, 4th, it may be absent when the muscular sense is very much impaired. Moreover, dizziness occurs in tabetic patients when it has not been provoked by closing the eyes, and is probably caused by arterial sclerosis.

While in tabes the nerves originating in the upper portion of the bulbus medullæ, particularly the nerves of the muscles of the eye, are frequently involved; the nerves arising in the lower portion of the bulb are hardly ever affected; disease of the latter induces the typical symptoms of labio-glosso-pharyngeal paralysis. Charcot, ⁷³_{v.12} who had occasion to observe a case of this nature, found

only one other mentioned in the literature of the subject. Charcot's case was one of tabes superior, and the region of the nervi trigeminus in particular was diseased. The patient complained of those most painful symptoms designated under the name "*masque tabétique*" by Charcot. In the region supplied by the trigeminus nerve, the patient experiences the feeling of wearing a mask, or as though the skin had turned to parchment; also a sensation of being covered by a spider-web. Actual pain is also present.

Absence of a sense of fatigue in a tabetic patient was noticed by Frenkel, of Horn. ⁶⁸_{July 1}. The sensibility of both upper extremities, particularly in the left hand, was markedly disturbed and lessened. It was especially striking that this patient was able to hold both arms in an horizontal position for twenty-five minutes without experiencing the slightest feeling of fatigue; a strong, healthy man can only maintain the position during, at most, six or seven minutes. While having the eyes closed the right arm remained horizontal and the left very slowly sank, which fact is probably accounted for by the impaired perception of position. Other tabetics, presenting much more pronounced disturbances of sensibility and failure of muscular sensation in the upper extremities, did not show the above-described symptoms.

Weiss, of Prague, ¹¹³_{Nov. 44, 48, 72} has observed pronounced allochiria in the case of a female patient, aged 54, suffering from tabes dorsalis; not only stitches, but temperature irritation and passive movement in the same locality on the opposite side of the body were experienced.

J. Wagner, of Graz, ⁸_{Nov. 24, 72} has found that in patients suffering from tabes dorsalis, and also in certain cases of dementia paralytica, the bladder can be voided by compression, only, however, when the patellar reflex had subsided. If in such cases of paralysis of the bladder, occurring in diseases of the spinal cord, pressure is exerted upon the abdomen in the region of the bladder, it is often possible to cause the urine to flow without its being necessary to use the catheter. The work of Sternberg, of Vienna, ²⁰⁶¹ should also be mentioned in this connection, as treating, in a most comprehensive manner, of the importance of the tendon reflexes.

Nagcolle ⁹²⁷_{June 24} examined three brains from tabetic subjects who presented no psychic symptoms, and found in one pronounced changes characteristic of dementia paralytica,—alterations in the

vessels and deficiency of the peripheral fibres in the cerebral lobe. He therefore believes that symptoms of dementia paralytica need not be present in tabetic patients, even though the corresponding anatomical changes have taken place.

Therapeutics.—Canova¹⁰⁰¹_{Jan.} recommends hydrotherapy, provided low temperatures and long continuation of the method are avoided.

From some exact statements concerning the use of Brown-Séquard's injections of testicular extract, we learn that²⁹⁰_{Mar. 7} in tabes a daily injection of 3 grammes (45 minims) of the fluid is indicated, as prepared in the Chaix and Remy factory, in sealed capsules. The injections are made with a sterilized syringe at a point where the cellular tissue of the skin is particularly lax, for example, on the abdomen, the buttocks, etc. When the injections are very painful, they should be made intra-muscular.

Guelpa³¹_{Mar. 4} treated a case of tabes with injections of testicular fluid, a perceptible improvement being very soon noticeable, but which was, however, of short duration, the symptoms again becoming progressive.

Worotynski, of Karan,⁷⁵_{Apr.} has studied the influence of suspension in affections of the spinal cord, particularly in tabes, and has found that in certain cases it is of benefit. The suspension was sometimes prolonged to fifteen minutes. Aravena, of Santiago,¹¹⁴³_{Oct. 72, to Feb.} calls attention to the fact that suspension may cause untoward effects in the early stages of tabes, as by this means the meningeal hyperæmia is heightened. Of all the symptoms of tabes, impotence is the one apparently most influenced. The author therefore tried the method in impotence of other origin, and actually obtained good results in the neurasthenic form, as well as in spermatorrhœa.

Bechterew, of Kasan,⁷⁵_{Sept. 15} is well satisfied with the results of suspension not only in tabes, but in other diseases of the spinal cord as well, particularly in compression myelitis, in which improvement was observed after several days. There was also noticeable improvement in sight, even when optical atrophy was present. The primitive appliances formerly in use for suspension should be entirely discarded, and the physician must be able to exactly regulate and control the stretching or extension of the patient. This requirement is fulfilled in an excellent manner by the apparatus described by Sprimon.

Hirschberg ²⁸⁵_{May 7}, has carefully and minutely tested Fraenkel's method of mechanical treatment for tabes. The principal consists in having the patient make certain exactly-prescribed movements of the ataxic members; these movements are at first very simple, and later on much more complicated; the patient must therefore concentrate his attention upon the muscular contraction and carefully watch the same, and thus makes great efforts to correct the ataxic irregularity. Hirschberg found that by this method the ataxic movements of tabetic patients may be noticeably improved. The muscular strength of the affected members becomes greater, the control of the co-ordination of the muscles is strengthened, and, moreover, the lost confidence of the patient is restored,—a moral result of great importance. The treatment may be used in all stages of tabes, yet the best results are obtained when the patient has not yet entirely ceased to walk; the method is not useful, however, in rapidly-progressing cases, when there is general ill health, and disease of the joints. The other cardinal symptoms of tabes—excepting the ataxia—are not influenced by this treatment.

FRIEDREICH'S ATAXIA AND COMBINED SYSTEMIC DISEASE OF THE SPINAL CORD.

Senator ⁴_{No. 21} is of the opinion that the truly genuine cases of Friedreich's disease are not, as is generally supposed, combined systemic spinal disease; the cases in which this condition is found in the spinal cord are rendered obscure by the existence of symptoms not belonging to the affection. He believes that the true Friedreich's disease is referable, in its most important phases, to a congenital atrophy of the cerebellum, with which a similar atrophy of the spinal cord probably co-exists.

Rossi ⁹⁷¹_{v. 3, No. 2, 3} has met with polyuria (as much as six litres—quarts) with but little sugar in two cases of Friedreich's disease. In the first of these cases, which ended in death, as well as in a case observed by E. Auscher, ⁴¹⁰_{Apr.} no actual combined systemic disease of the cord could be proved; the degeneration, in the last-named case, was confined to the posterior columns, the lateral columns remaining free. C. Mayer, of Vienna, describes the various forms of combined systemic spinal disease, and of combined pseudo-systemic disease of the spinal cord, also giving the reports of exact personal

examinations, the whole subject being considered from an anatomopathological stand-point.

Sänger-Brown, of Chicago, ⁴⁷_{No. 52} minutely describes twenty-one cases of hereditary ataxia, all belonging to a single family, and comprising four generations. The author is inclined—with a certain reserve—to consider these cases as hereditary ataxia, but also recognizes the fact that they differ in some important features from the type usually presented by this disease. These important deviations to which Ormerod and Bernhard also call attention are the following: 1. In true hereditary ataxia (Friedreich's form) the disease usually presents itself between the ages of 12 and 18, while in the cases quoted by Brown it frequently manifests itself much later (for example, at 45 years). 2. The majority of his patients were not of the female sex; it would appear that the disease is simply transmitted through their agency. 3. Brown frequently, though not invariably, observed ptosis, which is generally absent in Friedreich's form. 4. Amblyopia and amaurosis, which are never observed in Friedreich's disease, were constant and early symptoms in Brown's cases. 5. In the latter, the knee-jerk, which is absent in the former, was increased, foot-clonus being also present. 6. Brown did not observe club-foot nor scoliosis. 7. Pupil reaction was deficient in Brown's patients,—a fact not to be wondered at, since in the majority of cases there was optic atrophy; a symptom which does not occur in Friedreich's disease. As Brown did not have occasion to make a post-mortem examination in a single case, nothing positive could be determined concerning the nature of this disease. Undoubtedly, however, it closely resembles the hereditary ataxia of Friedreich.

SPINAL MUSCULAR ATROPHY.

The much-mooted question as to whether progressive muscular atrophy is of spinal or muscular origin seems at last to have been decided, since Erb, upon both clinical and anatomical bases, establishes a sharp division between the spinal forms (*amyotrophia spinalis chronica sive progressiva*) and the myopathic forms (*dystrophia muscularis progressiva*). It is shown, however, on the one hand, that intermediate forms exist, and, on the other, that the clinical differential characteristics cannot always be demonstrated. J. Hoffmann and Strümpell have also occupied themselves with

this subject. Hoffmann¹⁰⁰⁵_{B.2, No. 6} calls attention to the fact that only the myopathic, and not the spinal, form of muscular atrophy is hereditary. He has, however, observed, in the case of two non-neuropathic and in no way related families, a number of identical cases in which the children were affected by no apparent cause, and without either the pregnancies or births having shown anything in the least abnormal. In the one case, among fifteen children, at least six, and in the other, among six, two, were similarly affected. The children born healthy, at least to all appearances showing no trace of malformation or of any malady, have the normal movements of the legs and arms during the first few months. While continuing to develop well mentally, during the second half of the first year there is a noticeable weakening in the promptness and strength of the movements of the legs, together with weakness of the muscles of the back. This usually comes on very slowly, during weeks or months, without fever, convulsions, etc. The children remain in this condition for months, and even years, without the upper extremities or the muscles of the neck becoming involved. Much later it becomes impossible to raise the head, and the hand can only with great difficulty be carried to the mouth, while the muscles of the forearm and hand take part in the paresis. Simultaneously with the paralysis a general degenerative muscular atrophy sets in, which, in the beginning, is disguised by great fatty development in the cellular tissue of the derm. The symptoms mentioned are progressive and symmetrical. Cerebral and bulbar symptoms do not occur; the sphincters remain intact. Death always results, during early childhood (first to fourth year of disease), under secondary symptoms. An autopsy was made in the case of one of these children, which showed the unmistakable spinal character of the disease: atrophy of the majority of cells of the anterior horn throughout the entire spinal cord, particularly marked in the lumbar portion; pronounced atrophy of the anterior roots; less-marked, but similar, atrophy of the peripheral nerves; and, finally, very marked atrophy of the muscles in question. We gather, therefore, from these cases, that chronic spinal muscular atrophy may occur upon an hereditary basis during childhood.

Strümpell, of Erlangen,¹⁰⁰⁵_{B.2, No. 6} dwells upon the fact that the distinction between the myopathic and the spinal forms of progressive muscular atrophy is becoming more and more uncertain. He

is also of the opinion that, for the entire group of the progressive muscular atrophies, there has been as yet only one original cause shown, namely, an abnormal tendency, dating from birth, in the muscles and their respective nerve-centres. Though this congenital tendency only shows itself clearly in hereditary and family cases, it may be considered as existing in many, if not in all, sporadic cases. Experience shows that the atrophy of the motor system consequent upon this tendency frequently only affects certain muscles, but that, under certain circumstances, the peripheral nerves and the cells of the anterior horn may also become involved, and, in rare cases, even the pyramidal tract is affected. According as one muscle or another first becomes affected, certain symptoms present themselves (the various forms of dystrophy, bulbar paralyses, progressive ophthalmoplegia); and, on the other hand, the extension of the atrophy into the corresponding nervous region results in certain clinical differences. It would appear that the process begins in the muscle, and that the atrophy of the nerves originates in the peripheral intra-muscular distribution, and spreads centripetally to the spinal cord, finally involving the ganglion cells.

Experience demonstrates that disease of the joints (not alone of a traumatic character) may give rise to atrophy of the member in question, as well as to paresis. The researches of Valtat, Raymond, and others have shown that we have here a reflex atrophy. The irritation is transmitted through the centripetal nerves of the spinal cord, and occasions a modification (unknown in character) of the anterior-horn cells, the paretic atrophy of the affected member being thus further centrifugally induced, in a very acute form. Charcot⁷³_{Apr. 1} directs attention to the fact that such atrophy may also be occasioned by other centripetal nerves than those of the joints, spinal reflex amyotrophy of abarticular origin. A relatively slight trauma may suffice to induce such severe symptoms, but only in persons in whom there is an hereditary predisposition to nervous derangement. Charcot presented a young man whose sister was hysterically melancholic, and who himself became highly neurasthenic after an attack of influenza. While riding on a velocipede he suffered a contusion on the right planta pedis. Besides the local swelling, a quite perceptible atrophy of the entire right lower extremity set in, which within six weeks was very pronounced.

Charcot was of the opinion that under a treatment of hydrotherapy, massage, and static electricity the weakness of the limb would disappear; the atrophy, however, would very probably be permanent.

Thomson and Bruce²⁰⁶⁸ had under observation a case closely allied to that of Strümpell's, except that the patient was a child. At the beginning of the second year weakness of the legs was noticeable, gradually increasing until, later on, all the muscles of the body were weak and atrophic. There was no fever. The little patient, a very intelligent girl, died at the age of six. No degenerative reaction was noticeable in the affected muscles; in a few, however (differing in this respect from Strümpell's case), fibrillary twitching could be detected. The post-mortem examination gave results fully agreeing with the above facts. The muscles showed simple idiopathic dystrophy; degenerated fibres were clearly discernible in the nerve-trunks. The anterior-horn cells, throughout the entire length of the spinal cord, but particularly in the lumbar portion, were in a condition of simple non-inflammatory atrophy. This case, therefore, does not furnish any clear indications as to the primary seat of the disease. Bearing in mind, however, the fact that centripetal degeneration may also occur in the motor nerves, and may thus form the starting-point of the atrophy, we should be inclined to accept the theory of the peripheral origin of the affection, notwithstanding Bruce's opinion to the contrary.

Oppenheim, of Berlin,⁸⁶⁸ also seems inclined to abolish the strict dividing-line between the spinal form of muscular atrophy and chronic anterior poliomyelitis. He cites a case of the last-named affection, in which the most interesting feature is the unexpected post-mortem result. Microscopical examination demonstrated that, while the essential process of disease consisted in a total atrophy of the gray anterior horns in the spinal cord, the degeneration at the points of its greatest development was not confined to the anterior columns, but involved the posterior columns, and systematically involving the columns of Burdach. This was the more astonishing since there was, during life, absolutely no indication of any disease of the posterior column, sensibility having remained undisturbed up to the time of death. Since, however, the degeneration did not extend to the uppermost portion of

the cervical cord, and as this portion is usually involved, even in unadvanced stages of disease of the posterior columns, I would infer that the participation of the columns of Burdach in the process of degeneration was comparatively unimportant, thus explaining the absence of recognizable symptoms of disease of the posterior columns.

Baker,² on the contrary, found, in a case of chronic anterior poliomyelitis observed by him, complete anæsthesia and analgesia of both upper extremities up to the elbow, and a similar condition, of milder character, in the feet. He therefore considers that the process extended to the posterior horns, starting from the anterior horns.

E. Poussard, of Paris,²⁰¹² calls attention to a special form of spinal muscular atrophy. Since it is, however, derived from a syphilitic basis, it is alluded to at more length under the head of "Syphilis of the Spinal Cord."

W. H. Riley²⁴² reports a case of muscular atrophy in which the spinal cord was found to be involved. About one year before the death of the patient constantly increasing weakness in both legs became apparent; later on the muscles of the body also became affected, as well as those of the upper extremities; patellar reflex was absent, and the muscles were completely relaxed. There were no apparent disturbances of sensibility. At the post-mortem there was found atrophy of the anterior-horn cells and of the anterior roots, as well as very perceptible degeneration of the lateral pyramidal tracts, these changes being most pronounced in the lumbar region. The pathological alteration of the spinal cord was such as would occur in amyotrophic lateral sclerosis. Notwithstanding the diseased condition of the pyramidal tracts, no spastic symptoms were noticeable. Gowers has observed that in atonic muscular atrophy the pyramidal tracts are also usually found to be diseased.

LANDRY'S ASCENDING PARALYSIS.

Watson² observed a miner, aged 52, who had remained, lying on damp ground, asleep during five or six hours while in an intoxicated condition; on the following day the extremities were very weak; there was pain in the back and numbness of the hands and feet; later, increasing paralysis without anæsthesia, failure of patellar reflexes; on the sixth day the muscles of the

abdomen became paralyzed (there was no incontinence), then the intercostal muscles, the upper extremities, and, finally, the muscles of deglutition. Shortly before death, on the eighth day, the facial muscles also became paralyzed and speech was difficult. The post-mortem showed nothing particular, save congestion of the spinal meninges.

In the case mentioned by L. Cane,²_{Oct. 22, '92} the symptoms set in three weeks after the patient, a little girl aged 9 years, had taken cold on wading in the water. A few hours before death decided improvement was noticeable; the temperature grew lower, the voice stronger, swallowing was easier, and the upper extremities could again be moved.

The case quoted by Service,²_{Dec. 24, '92} could also be referred to a cold, as the boy, aged 15, had gotten very wet several days before the onset. In this case there was also anæsthesia; after three weeks the disease remained stationary, and then the symptoms very gradually abated, so that after about eight weeks there was complete recovery. Vesicatories were applied in the lumbar region, and ergotin, bromine, iodine, and antipyrin were administered. A strong, healthy girl of 12 years, observed by Lomonaco,⁵¹⁵_{No. 16} sickened without any apparent cause, and presented the symptoms of acute spinal pain and fever. Two days after the beginning of the fever paralysis of both lower extremities, with anæsthesia, was noticeable, which rapidly extended upward, with bulbar symptoms, and after fifteen days resulted in death. There was also rectovesical paralysis. Lomonaco is inclined to attribute the disease to an infectious origin.

HÆMORRHAGIC SPINAL PACHYMENINGITIS.

Gombault, of Ivry,⁷_{No. 12} received under treatment in December, 1892, a man, aged 84, who had suddenly become unconscious. There was very slight delirium, rigidity of the muscles of the neck and trunk, and occasional convulsions with opisthotonos. Contractions and convulsions in the extremities were also noticeable. After fourteen days the condition began to improve, and in the middle of February the patient left the hospital cured. After nine weeks he was stricken with apoplexy, and died in several hours. The post-mortem showed, besides the brain-apoplexy, a condition of hæmorrhagic pachymeningitis, restricted, however, to the dura mater

spinalis, involving its posterior portion, and continuing throughout the entire length of the spinal cord, most pronounced, however, in the dorso-lumbar region. Numerous small, shrunken hæmatomata were found. It must be considered as rare that the dura mater cerebri remained intact in this case.

BROWN-SÉQUARD'S UNILATERAL LESION.

Sottas, of Paris, ⁹²_{June 10} gives the complete history of two cases of typical Brown-Séquard's paralysis, both originating in a fall upon the back; in the one case the central region and in the other the lower portion of the cervical cord was affected. The nature of the degenerative process in the spinal cord cannot be accurately described. In the case of a man aged 47, quoted by Stieglitz, of New York, ⁷⁵_{Nov. 5} there was hemiplegia of the right side of the body with hyperæsthesia on the same side and anæsthesia on the left side (also involving the nervus auricularis magnus). Anæsthesia of the region of the right trigeminus was also remarkable. He, therefore, believes that there was a lesion (perhaps an embolus of the posterior spinal artery) in the upper cervical cord on the right side, in which the right ascending root of the trigeminus had also become involved. Berndt, of Stralsund, ³⁰¹_{v. 26} cites the case of an old woman who, after a fall down-stairs, had paralysis of the right half of the body, vasomotor paralysis and hyperæsthesia on the right, total anæsthesia on the left, with persistence of mobility. The tendon reflexes on the right were at first augmented, then diminished. The patient died after thirty-one days, and, at the post-mortem, fracture of the axis, with luxation of the atlas on the right side, backward, and compression of the right half of the spinal cord were discovered. In this connection the case of Remond and Rispal ¹⁰⁸⁸_{Nov. 26, 92} should also be mentioned, in which the symptoms of Brown-Séquard's unilateral paralysis are probably referable to a tumor.

DISEASE OF THE CONUS TERMINALIS.

Valentini ¹¹⁴_{v. 22} concludes, upon a basis of six cases in which the conus terminalis of the spinal column was affected, that a diseased condition above the second lumbar vertebra is very unfavorable as regards prognosis; it is favorable, however, if the process is localized lower down, unless a malignant growth be present.

SPINAL LOCALIZATION.

In examining a case in which the lower portion of the spinal cord was the seat of a glioma, A. Sarbo, of Budapest, ³⁶⁸_{v.25, No.2} was able to localize the centres for the bladder, rectum, and erections at the points of origin of the first four sacral nerves, which were involved in the neoplasm, the nervous substance being almost completely destroyed by the disease. P. Norbury, of Jacksonville, ⁹_{July 22} gives a concise summary of localization in diseases of the spinal cord.

TUMORS.

E. Rosenberg ²⁰⁶⁴ has given a very careful and comprehensive *résumé* of one hundred and sixty-six cases, not including those of tumors extending from the vertebral column. Dionisi ⁵⁸⁹_{Dec.2, 17, '92} reports the case of a woman who, in January, 1892, complained of pain in the region of the ribs on the right side, followed by increasing paresis of the lower limbs and cystomyelitis. Five days after entering the hospital (June, 1892) she died. An endothelioma, of about the size of a bean, was found inside the dura mater, near the level of the eighth spinal vertebra, involving the spinal cord and extending toward the left. Had the patient entered the hospital in a better condition, the tumor could have been operated upon advantageously.

A. Muggia ⁹⁰⁷_{No.1} found a large solitary tubercle in the spinal cord, which had occasioned symptoms of transverse myelitis; another tubercle was found in the left thalamus opticus, together with meningitis tuberculosa.

A closely-observed case of sarcoma of the spinal cord is described by W. H. Ross, of Brentwood. ⁵⁹_{Aug.12} The tumor had involved the right half of the spinal cord from about the eighth cervical nerve to the second dorsal nerve. The eye-symptoms (narrowing of the palpebral fissure and myosis) are especially important, as their presence is usually characteristic of disease of the cervical cord. From an account of a large number of similar cases, we may infer that sarcoma of the spinal cord usually progresses more slowly (one to two years) than tubercles, which usually lead to death after three months. Remond, of Metz, and Rispal ¹⁰⁸⁸_{Nov.24, '92} describe the case of a man, aged 45, presenting the symptoms of paræsthesia and dysæsthesia of the left leg, with normal mobility in the same; the right leg was hyperæsthetic and was

affected with paresis and muscular atrophy. This case of Brown-Séquard's paralysis may probably be referable to a tumor, most likely a vertebral exostosis.

PERIPHERAL NERVOUS DISEASES, MUSCULAR DYSTROPHIES, AND GENERAL NEUROSES.

By PAUL SOLLIER, M.D.,

PARIS.

TONIC AND CLONIC SPASMS.

Babinski, of Paris, ¹⁴_{May}, endeavors to demonstrate that contracture combined with sclerosis of the lateral columns differs, both clinically and pathogenically, from hysterical contracture of the muscles, and that they are absolutely distinct phenomena. The rigidity in organic contracture is much less pronounced than in hysterical contracture; the reflexes are exaggerated in the former, and remain unaffected in the latter; at least, in the majority of cases. Hysterical contraction, according to this author, is to be considered as a condition of prolonged muscular contraction, differing in this also from organic contraction. Preston, of Baltimore, ¹²_{Mar.}, presented, at the Clinical Society of Maryland, a patient attacked by contracture of the left arm, probably hysterical, following a fall on his shoulder. Fisher ¹_{Mar. 25} reports a case of rhythmic spasm of the legs, the attacks coming on every day or two, which he also attributes, no doubt correctly, to hysteria, notwithstanding the absence of any stigmata. F. Peterson, of New York, ¹_{Mar. 25} cites a singular case of clonic spasm of the muscles of mastication, occurring after prolonged sittings at a dentist's, where, to permit of the adjusting of a prothetic appliance, the patient was obliged to keep her mouth open a very long time. The principal difficulty was in talking; the mouth remained open, and there was a partial dislocation of the temporo-maxillary joint. The spasm ceased at night. The affection, ameliorated by sulphate of duboisine, lasted for seven years. Hirt, of Breslau, ⁵⁷_{Mar. 5}, reported an epidemic of hysterical convulsions in a village school, twenty of the pupils having been affected within twenty-two days. He believes the heat of the season to have been the cause.

Professional Cramps.—W. Turner, of London, Eng., ⁶_{Apr. 29} has

observed a case of professional cramps not before described. The patient was a cornet-player, who was unable to make certain movements of the tongue; for instance, those of single, double, and triple tonguing. He was able to perform movements without difficulty when alone in his room, but with the orchestra this became impossible. The only movements of the tongue affected were those required for the staccato. The tongue reacted normally under electricity, and only showed slight fibrillary tremors. The phenomenon in question was one analogous to writers' cramps. Langes,²_{Apr. 1} who suffers from the last-named affection, gives a method of holding the pen which permits of writing. The holder is placed between the index and middle fingers, the index finger slightly curving around it, and the thumb and third and fourth fingers supporting it. The holder points straight outward, and makes an angle of 30 to 35 degrees with the paper. Le Marin⁸⁶⁸_{Dec. 21, '78} describes a case treated by him.

Dupuytren's Disease.—Howse¹⁰⁷⁷_{Mar. 3} reports a case of Dupuytren's contraction affecting both hands in different ways. The annular and little fingers were affected in the right, and the middle and the annular in the left. The patient was a currier, and was obliged, on account of the instruments used, to contract the annular and little fingers in the right hand, and the middle and the annular in the left, the little finger remaining free. Habitual contraction would thus appear to be a factor, to some extent, in the production and localization of this affection. Lyle⁴⁰_{Feb.} observed a young girl, aged 16, in whom Dupuytren's disease appeared simultaneously in both little fingers, at the age of nine, without any apparent cause, rheumatic or otherwise. Galli Valerio⁸⁶⁸_{June 10} performed a post-mortem examination on a woman who had the condition known as trigger-finger of the middle finger of the right hand. He found, as an explanation of this, a fusiform thickening at the point where the tendon of the deep flexor passes through the canal formed by the superficial flexor. This thickening resulted from frequent pressure at this place. Von Genser⁸_{Dec. 1, '78} observed a congenital case of trigger-finger in a child of 17 months, on the annular finger of the right hand, said to have existed since birth. It is only the third case of the kind recorded. Chabbert⁹⁴_{Jan.} includes, under the title of "tic diseases," not only movements of a generalized nature, but also cases in which the

spasms are localized. These last may originate in traumatism as well as heredity, and may give rise to coprolalia or tics of thought. In all, heredity plays the principal part, in the form of insanity, alcoholism, and even brain-disease. J. Noir, of Paris,²⁰¹² has studied tic in weak-minded, imbecile, and idiotic patients. No perfect definition can be given of these phenomena, which form a series, the purely motor phenomena (simple convulsive tics) merging, by imperceptible transitions, into the purely psychic phenomena (idea tics, obsessions, etc.). The co-ordinated tics are those most frequently manifested in idiots. Heredity, functional disturbance of nervous-centres, and imitation are determining causes; diminished will-power is indispensable in their production, and is yet the only essential factor in their cure. Roubinovitch,^{361 p. 467, '98} publishes a case of convulsive tic, interesting in that the movements were made under the influence of a true obsession, having the special psychic characteristics of this condition.

Jolly, of Berlin,^{57 June 11} cites four cases of convulsive tic, and considers that it should be regarded as having a special autonomy, although it may be complicated with other automatic and impulsive movements. Moussous^{70 Sept. 17} mentions a peculiar complication. The patient was an hysterical little girl, subject to a convulsive tic of the shoulder, who developed an inflammation of the bursa serosa, under the scapula. Terriberry^{242 Aug.} treated a case by elongation of the facial nerve. All the facial movements returned, and the spasms have not re-appeared since the operation.

Arthrogryphosis.—This is the name given to a permanent tonic spasm affecting the entire muscular system, occurring principally in children. The cases in which there is a relaxation or intermittence in the condition of spasm are called tetanilla, or intermittent tetanus. Sparrow, of Chicago,^{192 Mar.} has observed two cases of this affection, which he at first considered as tetanus of newborn infants. One of the children succumbed, the other lived and did not develop any other new morbid symptom. The author does not give any opinion as to the cause or the nature of this generalized spasm. Mugdan^{41 Nov. 17, '92} observed that a child born four weeks before term could not extend the feet, which were held greatly flexed. Two months later, after a light attack of convulsions, the same symptoms were observed in both arms. Menoch has seen a similar case, but does not believe it to be an arthrogryphosis, or

even an idiopathic or tetanic contracture. A weak, interrupted galvanic current entirely dissipated the contracture within a fortnight, and the child remained well. Senator believes that this case belongs to Ruprecht's congenital spastic rigidity of the limbs. (Report of Corr. Editor Morel, Ghent.)

Cramps.—Babinski, of Paris, ⁸²⁷_{Dec. 22, '92} finds that cramps may be induced in choleraic patients by faradization of the muscles. These induced cramps may also occur in the algid period of certain diseases (peritonitis), in lead poisoning and alcoholism when there is peripheral neuritis, in certain tabetics with peripheral lesions, and in some hysterical and neurasthenic patients. They are only distinguished from Thomsen's disease by the faradic reaction of the muscles. Manicatide ⁶⁶⁰_{v. 11, p. 446} ⁹⁹⁶_{Apr. 25} advances the following pathogenic hypothesis apropos of a case of functional cramp of the neck: Independently from the primitive cause, the convulsions are kept up by inequality in strength of the antagonizing muscles, —a result of the convulsions themselves. A vicious circle is thus established. The convulsions cause muscular hypertrophy, and the hypertrophy causes the convulsions by weakening the antagonistic muscle. It therefore becomes necessary to immobilize the hypertrophic region and to stimulate the opposite side by electricity. Gallerani and Pacinotti ⁷⁵_{July 18} ²_{Sept. 16} relate a case of reflex spasm of the tongue caused by the cicatrix of a scalp wound, which produced a contraction of the muscles of the left side of the neck and difficulty in speech and deglutition. Upon excision of the cicatrix, when a small piece of porcelain was removed, the symptoms gradually disappeared. Sternberg ⁵⁷_{June 4} considers tendon reflexes as true reflexes, and divides contractures into three groups: those with augmentation of tendon reflexes, those with diminution of tendon reflexes, those having no influence on the tendon reflexes. Bernhardt ⁴_{v. 20, p. 293} presented a child attacked by a special affection not yet described, consisting of clonic cramps in the region of the peroneal muscles. The cramps were constant even during sleep. There were no disturbances of sensibility, while the intelligence and organs of sense seemed unaffected.

Convulsions.—Jules Simon, of Paris, ³¹_{Apr. 26} gives the following causes of eclampsia in children: (1) excitation of the digestive tract (in 80 per cent. of the cases); (2) cutaneous peripheral excitation; (3) acute febrile affections; (4) poisoning of the blood

by carbonic oxide, malarial fever, or turpentine. As to treatment, he relieves the digestive organs by a laxative, or by tickling the throat until vomiting occurs; if the attacks continue, he gives ether or chloroform by inhalation, and administers frequently repeated but small doses of the following antispasmodic mixture: chloral hydrate, bromide of potassium, $\bar{a}\bar{a}$ 1 gramme ($15\frac{1}{2}$ grains); syrup of codeine, 5 grammes ($1\frac{1}{4}$ drachms); tincture of musk, tincture of aconite-root, $\bar{a}\bar{a}$ 10 drops; orange-flower water, 100 grammes ($3\frac{1}{4}$ ounces). If the attack is grave and prolonged, he places the patient in a warm bath and applies a small blister to the back of the neck, or to the epigastrium. Descroizilles, of Paris, ⁴¹_{Mar. 18}; ¹_{Apr. 18} gives similar recommendations, and praises the cold bath, friction of the entire body, stimulating applications, emesis, laxatives, chloral, valerian, and absolute rest. Norman Bridge, of Chicago, ⁵_{Mar. 5} advises, above all, the use of opium and chloral. In a case of traumatic eclampsia in a child of 11 years, J. Dongall ²¹⁸_{Feb.} obtained considerable amelioration of the convulsive attacks by the use of the biniodide of mercury.

The association of convulsive phenomena with psychical disturbances is very common, but it is still a question as to whether there is any causal relation between them. From three interesting cases carefully observed by X. Francotte ⁶⁸⁵_{Dec., 99}; ²⁴²_{May} the following summary may be made: All three of these cases have a common character,—chronic convulsive neurosis, accompanied by intellectual enfeeblement ending in insanity. “Is it not possible,” he asks, “to attribute the intellectual weakening to the convulsive condition?” Ribot ²⁰⁷² demonstrates, from numerous examples, that a great expenditure of motion and the condition of attention are antagonistic; reflection is impossible while running or during any intense movement. On the other hand, it is said of an audience deeply attentive, “one could hear a pin drop.” How quickly a flutter of movement passes over an audience after a period of strained attention! Francotte concludes, therefore, that chronic convulsive conditions, to say the least, favor and never inhibit intellectual degeneracy.

TETANY.

Sänger-Brown, of Chicago, ⁷⁷⁹_{Feb.} cites a case of tetany in a young man of 24 years, who had attacks about every third night without any plausible cause, either in heredity or the personal condition

of the subject. Two cases quoted by B. Whitton, of Reefton,²⁶⁷ occurring in women of 17 and 37 years, appear to be purely hysterical.

Dufour,²¹²_{Nov. 25, '92} has brought forward arguments to show that there exists a true essential tetany in healthy people, independent of the manifestly infectious forms of hysteria and other neuroses, and which is remarkable for its liability to recur. Albert Abrams, of San Francisco,¹⁴⁷_{Apr.} reports a case, in a man of 28 years, which may be included in this variety, for the treatment of which he had recourse to hypnotic suggestion, which he recommends in similar cases. Burckhardt,²¹⁴_{No. 1, p. 17; Mar.}¹¹⁸ publishes a case, in a boy aged 2½ years, whose family was neuropathic. The tonic contractions were more pronounced in the upper members, and, instead of lasting three or four hours, persisted without relaxation during three days. No sensory or psychic disturbances. The first attack was attended by a swelling of the tibio-tarsal articulation and that of the wrist. There was also abolition of the patellar reflexes at the time of the first attacks and exaggeration of the same during recurrences.

Ewald, of Berlin,⁵⁷_{June 18} reports a case of tetany, in a woman of 26 years, following confinement. Evans²⁸²_{Sept.} mentions two cases in children. Fraser³⁹_{July} cites one case, in a man aged 30, suffering from gastritis. Loos,⁸⁶³_{Apr.} after an examination of seventy-four cases, states that stridulous laryngitis is the most important symptom of tetany in childhood. Ewald, of Berlin,⁴¹_{May 18} describes a case associated with dilatation of the stomach. The affection was probably caused by a toxin,—due, however, to an affection of the intestines, and not of the stomach. It is certain that reflex excitement plays an important part, aside from the intoxication. J. Kramsztyk⁵⁵¹_{No. 19; June 18}⁵⁷ also reports a case which confirms Escherich's opinion as to the invariable presence of spasm of the glottis in tetany in children. (Report of Corr. Editor Morel, Ghent.)

THOMSEN'S DISEASE.

Déjerine and Sottas, of Paris,¹⁴_{June 28} publish the first autopsy of Thomsen's disease, the only muscular lesions observed having been studied in the living subject. The case was that of a man, aged 37, presenting the typical form of this affection; he succumbed, after several days, to an acute nephritis. Examination of the muscles in various parts of the body revealed the following

changes, affecting almost exclusively the muscular fibre: In the first stage there was hyperplasia of the nuclei under the sheath of the sarcolemma; these nuclei, elongated or strangulated, had a tendency to arrange themselves in series, forming chains of from twenty to thirty. The fibre then became hypertrophied and rounded. Sometimes the muscular protoplasm was distended, the fibrils adhering to each other, and the longitudinal striation disappearing, while the transverse persisted and even became accentuated; in other places the neutral protoplasm became hypertrophied, separating the fibrils, and the longitudinal striæ became more pronounced, while the transverse, on the contrary, disappeared. The fibres thus distended measured from 100 to 180 μ . At a more advanced stage the muscular protoplasm disintegrates, the dissociated sarcous elements are enveloped in an amorphous substance, and the nuclei are irregularly disposed. Finally, the sarcolemmatous sheaths may become completely empty. The connective tissue seems only to serve the purpose of filling the empty spaces. The small vessels and intra-muscular nerve-trunks are intact. The muscular nerves are unchanged, as well as the large nerve-trunks. The spinal cord and the bulb are absolutely unaffected. These results show that Thomsen's disease should be included in the group of myopathic affections. Krafft-Ebing²⁸⁸_{Apr. 18} has studied a case which it is difficult to class either under the head of Thomsen's disease or of Eulenberg's paramyotonia. The author, moreover, considers paramyotonia merely as a single variety of myotonia. Fragments of muscles examined during life show enlargement of the muscular fibrils and augmentation of the nuclei. There was also the appearance of vacuoles in the muscles.

PARALYSES.

Paralysis Agitans.—Yager, of Campbellsburg,²²⁴_{July 28} reports two typical cases of this disease, in a mother and her son, showing the obscurity of the pathology and the inutility of treatment. Bradshaw¹⁸⁷_{July} also reports a case of paralysis agitans in a woman aged 60. B. Ward Richardson³⁸_{Oct. 21} regards the arterial pulsation as a cause of local paralysis agitans. Chabbert⁹⁴_{June},²¹³_{Sept.} points out that the co-existence of hysteria and paralysis agitans is not well defined, that they originate in the same causes, and that the onset in both is very often sudden; and he concludes that the two affections are

very nearly related. Dana, ¹_{June 10}, after giving a full report of two cases of his own and reviewing those published by others, expresses the view that the anatomical seat of the disease is the spinal cord, medulla, and pons; that is, in the lowest segment of the central gray matter; the disease seems to be most marked in the blood-vessels which supply the central part of the cord and the anterior horns, and next in the lateral columns, including both the pyramidal tracts and the lateral fundamental columns and lateral limiting layers. There is sometimes degenerative neuritis of the peripheral nerves and chronic myositis. This chronic irritative process is due to a toxin which circulates in the blood, and may be of an endogenous and, perhaps, glandular origin.

Ketscher, ¹³_{July 18}, in three typical cases of paralysis agitans, carefully examined the central and peripheral nervous system, and also the muscles. Pathological changes were found in every case. Atrophy of all the tissue-elements was present in varying degrees, and the ganglion cells in the brain were markedly pigmented and had undergone disintegration. The nerve-fibres in the cord were almost completely degenerated, this being especially marked in the posterior columns and also in the peripheral nerves. Muscular fibres partly atrophic and undergoing hyaline degeneration. Increase of connective tissue in the cord, peripheral nerves, and muscles. There was neuroglia sclerosis in the cord, affecting mostly the cortical layer and the blood-vessels. There were also pronounced changes in the blood-vessels; miliary aneurisms and hæmorrhages were found scattered throughout the cord, particularly in the lumbar portion. Borgherini, ⁶⁷³_{Nov. 7}, after a microscopic examination of a case, concludes that the affection does not primarily attack the vessels, (1) because the inflammatory lesions are irregularly distributed throughout the nervous system (in some regions there were even traces of atrophy of the nervous system); (2) because there is a great development of the vessels; and (3) because vasomotor symptoms predominate. (Report of Corr. Editor Morel, Ghent.)

Mendel ⁹⁰_{Mar.} employs duboisine in paralysis agitans, in doses of 0.003 gramme ($\frac{1}{2}\frac{1}{2}$ grain), and later 0.004 and 0.006 gramme ($\frac{1}{16}$ and $\frac{1}{11}$ grain). In a few of the cases observed the trembling was reduced so quickly that the patient, who could hardly hold a pen, was able, ten minutes later, to write a letter. The drug produced

no change in gait. Lacaze⁶⁸⁵ has used borate of sodium with excellent results in a case of paralysis agitans. Gilles de la Tourette, of Paris,⁶⁴ made use of a "trembling chair" with encouraging results.

Hysterical Paralysis.—Bastian, of London,¹⁶⁶ has studied the various forms of hysterical or functional paralysis. The diagnosis is not positive, but simply excludes an organic lesion. He then endeavors to demonstrate, contrary to Ferrier's views, that the motor area and the area of kinæsthetic sensation are one and the same thing, and points out the characteristics distinguishing cerebral and spinal paralyses from hysterical paralyses. Freud, of Vienna,⁹⁴ following the teachings of Charcot, regards hysterical paralysis as imitative, but of a special form of imitation, the characteristic nature of which is still undetermined. Hysterical paralysis is more dissociated and more systematized than cerebral paralysis; it has an exact limitation and an excessive intensity; it is almost always accompanied by disturbances of sensibility. The lesion appears to consist in the abolition of the associative power of conception as regards the members.

Facial Paralysis.—The existence of hysterical facial paralysis has long been denied by authors. Gasnier²⁰¹² has collected the cases in which, however, it has been undoubtedly recognized. One of the most interesting points brought forward by him is that the affection usually presents itself in a systematic form. Ballet and Sollier, of Paris,⁹² have reported a case in which there was, besides the systematization, hysterical mutism and agraphia, the latter, however, being considered as incompatible with hysterical mutism. Decoux^{2012, 24} has collected eleven cases of the disease which is rarely bilateral, and implicates the entire inferior facial, of which it sometimes, however, attacks but a part. It varies in intensity, and is sometimes recurrent. It may be coincident with hemiplegia, but the latter is always incomplete or transitory, as is paresis of the tongue. As in hemispasm, there is a preponderance of motor and sensory troubles, the anæsthesia being greatest in the face. There is also a weakening of the faculties of attention and memory. In my opinion, however, these latter troubles are due to the hysteria, and not to the facial paralysis, as the author believes.

Luzzato, of Palermo,⁵⁸⁹ reports a case of double facial paral-

ysis in a young parturient, who at the same time suffered from mutism; notwithstanding that the affection appeared to be nuclear, the symptoms were probably due to hysteria, as the patient recovered rapidly. Pugliesi, of Padua,⁵⁸⁹_{Nov. 9, '92} has published another case of complete double facial paralysis, of acute, infectious, and primitive polyneuritic origin. Stintzing,³⁴_{Jan. 10} relates two cases of facial diplegia: 1. A girl, aged 16, was rapidly seized with diffuse right facial palsy, and a few days later the other side of the face was affected. The palate moved slightly on either side. Taste was intact. The conjunctival and corneal reflexes were absent; the pupils acted naturally. There was rapid improvement under electrical treatment. The author diagnosed a bilateral peripheral palsy, due to a lesion about the ganglion geniculatum. 2. A man, aged 26, also had diffuse facial palsy on both sides. The tongue was somewhat wasted, the taste impaired, and swallowing difficult. There was also general muscular wasting. There was no reaction to faradism or galvanism in the facial muscles. It was thought to be due to a nuclear paralysis of the facial and other nerves in the medulla, probably of a syphilitic nature.

Darkschewitsch and Tichonow,⁷⁵_{p. 220} describe the morbid histology of the facial nerve in a case of paralysis originating from middle-ear disease. The patient, a woman aged 55, had acute suppuration within the left tympanum as a result of cold. Death occurred from erysipelas of the face and scalp. In the distal part of the trunk of the left facial nerve, from about three millimetres below the geniculate ganglion, marked changes were observed, such as absence of myelin along portions of the nerve-fibres, altered staining qualities of the medullary sheath, thickening of axis-cylinders, many empty Schwann's sheaths. Above the point named, similar pathological alterations were present to a less extent. In no part of the trunk was there evidence of interstitial inflammation. Very pronounced atrophy of the fibre net-work in the region of the nucleus and of the cells of the nucleus was seen, but the ground-substance of the nucleus, the vessels, and Deiter's cells exhibited no decided change. There was thus a parenchymatous neuritis in the peripheral portion and atrophy of the nuclei in the central portion of the nerve. (Report of Corr. Editor Morel, Ghent.) William Gay,²_{Apr. 5} contributes an interesting article on congenital peripheral facial paralysis. Bernhardt,⁹⁰_{p. 220} quotes four cases from

other authors, with the addition of two personal ones, in which there was spasm on the opposite side to that affected by facial paralysis. The author considers the spasm due to the irritation resulting from an ulceration of the cornea, affecting reflexly the facial muscles. Hitzig⁴_{p.1270, '92} has studied the position of the tongue in facial paralysis,—a point upon which authors differ. He states that in the lighter forms the tongue is always put out straight, but that in severe and protracted cases it deviates to the sound side if at all; if the angle of the mouth on the paralyzed side be drawn to its proper place, however, the tongue will straighten, which fact he explains by saying that the tongue is accustomed to keep at an equal distance from each oral angle. When it finds that it is nearer one angle it deviates to the other side until its median position between the two angles is restored. Babinski, of Paris,⁴¹⁹_{Dec.14, '92} demonstrates that the disease is most frequently systemic, and that its aspect varies, according as certain special portions of the motor system are involved; that both sides of the face are simultaneously attacked, whether there be bilateral paralysis, or facial hemiplegia associated with facial hemispasm of the opposite side. He is of the opinion that hysterical paralysis does not usually weaken the muscular tone, and that therefore, in pure hysterical facial hemiplegia, buccal deviation should not exist, and that it should only occur when spasmodic phenomena are associated with the hemiplegia.

Marinesco and Sérieux⁴¹⁰_{July} have made a study of an interesting case of traumatic lesion of the trigeminus and of the facial, with consecutive trophic disturbances. The patient was a lunatic, aged 40, who had fired a shot from a revolver into his right ear. The traumatism was followed by paralysis of the muscles of the face on the right side and abolition of sensibility on the same side; later on, the right eye became gradually affected by ophthalmia, and the field of side-vision was almost entirely destroyed. Facial paralysis, incomplete paralysis of the sensory and motor branches of the trigeminus, and trophic disturbances were present. The facial paralysis was complete with reaction of degeneration in the paralyzed muscles. Cutaneous sensibility to pressure persisted, the mucous membranes being insensible to cold, heat, contact, and pain. There was a condition of paræsthesia analogous to the illusion following amputation. Finally, the trophic disturbances were

characterized by œdema and depigmentation of the skin, infiltration of the subcutaneous and mucous cellular tissue, hypertrophic disturbances in the nutrition of the hair and of the lower maxillary bone, kerato-conjunctivitis, hemiatrophy of the tongue, degeneration of the muscles of mastication, hypersecretion of tears and of perspiration.

Perrin, of Marseilles,²⁴ reports a rare and interesting case of peripheral facial paralysis, following a cervico-occipital zona, occurring in a nervous subject of neuro-arthritic heredity. All the symptoms were rapidly followed by recovery. The paralysis appeared toward the end of the second week, at the period of desiccation of the zona eruption, which did not involve the deep muscles of the tongue, the soft palate, or the tympanum. Everything would indicate a superficial and temporary neuritis,—infectious also, if we admit, with Landouzy, the infectious nature of zona. The nervous heredity must certainly have played a part in its occurrence.

Parrot's Disease.—Moncorvo has already observed and reported 3 cases of syphilitic pseudoparalysis, which were cured; he again reports³⁶³_{p. 12, '93} 4 new cases, also ending in recovery. Bradford⁹⁹_{Dec. 22, '93} describes 11 personal cases in which recovery took place.

Localized Paralysis.—Bruns⁷⁵_{No. 1} describes a case of pronounced paralysis of the serratus in which the most important symptom, inability to elevate the arm above the horizontal plane, was entirely absent. The patient, a brass-founder, was able to continue his occupation. It is worthy of note, from a clinical point of view, that the most important symptom, which causes the essential functional disturbance in serratus paralysis, is not present in every case. Alex. James³⁶_{No. 1} reports a case of combined paralysis of the nerves of the arm following traumatism. The left arm throughout was thinner, and felt more flabby than the right, and when asked to move the arm or forearm the loss of power became very marked. The flattening of the left shoulder caused by the wasting of the deltoid was specially apparent. There were no other obvious morbid appearances. The paralysis was associated with atrophy and absence of reflex irritability of the muscles. There were also some important sensory disturbances: a well-marked area of anæsthesia over the deltoid muscle, corresponding with

the distribution of the sensory fibres of the nerve of the muscle, the circumflex nerve; over the supraspinatus muscle there was an area where the anæsthesia was less; and over the forearm an area of anæsthesia corresponded to the distribution of the subcutaneous fibres of the musculo-cutaneous nerve. With the diminution of sensibility to touch, temperature, and the faradic current, there was, further, a marked hyperæsthesia to painful impressions. It is probable that the fourth and fifth nerve-roots were involved, and that the spinal nerves had been injured outside the junction of the motor and sensory root, and, of course, outside the ganglion on the sensory ones.

Proust, of Paris, ¹⁰⁰_{Mar. 30} reports a case of complete paralysis of the forearm and of the hand, comprising the muscles innervated by the radial, the median, and the ulnar nerves, due to compression caused by the patient resting his head on his arm while sleeping. This compression was exerted, for the radial, on the musculo-spiral groove, below the nerves of the triceps; and for the median and the ulnar, upon the middle portion of the arm. Hermann Rieder, ⁸⁴_{Feb. 14} describes a form of combined paralysis of the nerves of the arm and of the brachial plexus affecting stone-carriers, and due to compression of the nerves by the wooden arm of an apparatus used by masons. Kupke ²⁸⁷_{Aug. 26} reports a case of traumatic paralysis of the right arm, most probably due to a lesion of the medulla oblongata.

Delprat ⁶⁹_{v. 19, p. 49}; ²_{Apr. 1} discusses the value of electricity in paralysis of the arm, due to pressure during sleep. Of 87 available cases, 33 were treated by galvanism, 28 by faradism, and 26 by pseudo-electrical treatment, to test the effects of suggestion. The results of the various methods differed but slightly.

In a work on paralysis of the inferior members and paralysis of the external popliteal nerve, G. Cousot ⁵²_{v. 7, No. 3} studies certain cases presenting circumscribed akinesia, and eventually amyotrophy and anæsthesia, of a nerve-branch, the causal lesion in the meantime affecting the entire trunk. This curious localization is principally manifested in the region of the lower limb supplied by the external popliteal. The author reports a large number of personal cases. Carter ⁸⁹_{May 1} arrives at the following conclusions regarding obstetrical paralyses: (1) the upper-arm type is due to a stretching of the upper trunk of the brachial plexus during the process of delivery;

(2) this is brought about by traction on the head or pressure on the breech when the shoulder is retarded, or by traction on the shoulder when the head is retarded; (3) the prognosis, as a rule, is good, although recovery may be delayed months or years, permanent disability being rare.

Acute Ascending Paralysis (Landry's Disease).—Stokes, ²⁶⁷_{Feb. 15} Service, ²_{Dec. 24, '92} and Leonard Cane ²_{Oct. 22, '92} report cases of this affection, unfortunately without autopsies. A post-mortem examination was made in a similar case by J. Watson, ²_{Dec. 10, '92} with negative results, as is usually the case. Luigi Villa, ¹¹⁰²_{Sept. 15} in a histological examination of a case of Landry's paralysis, found, in the peripheral nerve-fibres and in the roots, the lesions of parenchymatous neuritis, with preservation of the cylinder axis. There were no changes in the intra-vertebral ganglia. The cylinder axes were surrounded by accumulations of a substance having a special morphological and micro-chemical character, which was also found on the transverse sections of the spinal cord, particularly in the periphery. The central canal was filled with cellules and globules, which completely obstructed it. The same condition existed in the brain and the cerebellum, where the nervous elements were well preserved. The muscular fibres were numerous; the nuclei of the sarcolemma were augmented.

Paralysis of Brown-Séguard.—Leo Newmark ⁹_{Nov. 22, '92} reports in detail a case of this affection in a man who had received a knife-thrust in the back. He immediately had paralysis of the right lower limb, with insensibility of the left. Kjør ⁶⁷³_{July} described a well-observed case of this affection caused by a stab with a knife. Aage Kiaer ⁶⁸_{Apr.} publishes an observation of a case of Brown-Séguard's paralysis which confirms Gowers's opinion that pain is transmitted by the antero-lateral portion of the lateral column of the cord and the sense of touch by the posterior column.

Toxic Paralyses.—Carpentier ²⁰¹²_{'92} publishes a very complete study of alcoholic paralysis. Achard and Soupault, of Paris, ¹⁷_{June 13} give the clinical history and anatomo-pathological result of two cases of acute generalized alcoholic paralysis. In one case the patient entered the hospital in a state of delirium tremens; in the other case, a female, the disease began by hysterical manifestations. In both cases there was tachycardia, which was explained by neuritis of the pneumogastric found at the histological examination.

Both patients died in syncope, probably due to infiltration by leucocytes of the bulb at the level of the primary nuclei of the vagus nerve. The authors especially call attention to the medullary alterations in the second case,—degeneration of the large motor cells and of the anterior horns of the cord, particularly in the dorsal region. J. Arnaud⁴⁶_{Mar. 1} cites the case of a woman who had an attack of delirium tremens, with complete paralysis of both legs, and who was entirely cured. Two cases of arsenical paralysis are recorded by Erlicki and Rybalkin.³⁶⁸_{V. 22, p. 261}; ⁶_{Nov. 12, '92} The course of the affection was similar in the two cases. One patient died of phthisis after the lapse of a year. Degeneration of the peripheral nerves, together with changes in the anterior gray horns, was found. The ganglion cells were reduced in number, and those that remained were altered in shape and size. The nerve-fibres, also, in the anterior horns were reduced in number. The authors regard the alterations in the cells in these conditions as being due not so much to the direct action of the poison as to the mechanical alteration in the circulation, and to physiological and chemical peculiarities in the blood. Jolly⁶⁹_{Feb. 3} presented a typical case of arsenical paralysis after a single suicidal dose of the drug, the succession of the symptoms showing the paralysis to be due to a peripheral neuritis. The author also gives the details of an autopsy upon a case of lead-palsy. Several sections of the hardened cord showed that the ganglion cells of the cervical cord were rather few in number. The usual changes were found in the muscles and nerves. Jolly does not attribute any causative influence to the changes in the cord, but believes that lead-paralysis, like arsenical paralysis, is of peripheral origin.

Wollenberg³⁴_{Aug. 3} also reports a case of acute arsenical paralysis. Lop¹⁰⁰_{Sept. 14} divides the paralysis due to measles into the encephalic form, most frequently accompanied by acute encephalitis, and often ending in cerebral lobar sclerosis, and the myelopathic form, which is much more frequent.

Ascher⁴_{July 3} reports an abnormal case of lead-palsy in which the forearm of the right side was affected, the arm and shoulder of the left.

Spastic Paralysis.—Sayre¹_{Dec. 17, '92} presents a case of this affection in a little girl who at the same time presented inco-ordination of the upper members, was very retarded in mental growth,

and who had been almost asphyxiated at birth. Hutton ²_{Nov. 21, '92} also refers several cases of this affection to asphyxiation at birth or in early infancy, this condition being frequently accompanied by arrest of psychic development. Krafft-Ebing ⁵⁷_{Nov. 27, '92} exhibited three sisters, aged 6½, 12, and 15 years, respectively, with undoubted symptoms of spastic paresis, apparently hereditary in origin. The children were born without artificial aid. Two of them have slight nystagmus and show symptoms of rachitis. Patellar reflexes are elevated, with patellar clonus in the eldest. The psychical condition is undisturbed.

Leo Newmark ⁵_{Apr.} writes concerning spastic paraplegia of the hereditary form, basing his article upon the observation of two families in which several members were affected with this disease, and in one of which there also occurred a case of spasmodic bilateral hemiplegia.

HEADACHE.

Harry Campbell, of London, ²_{Apr. 3} considers headache to be due to a perturbation of the centres of general sensibility, which are in intimate connection with the sensory centres. The remedies proposed are always numerous. Iron, arsenic, cannabis Indica, and dosimetric granules of all kinds are each in turn prescribed. Parsons Norbury ²⁰²_{June 10} and Stewart ⁷⁸⁰_{Nov., '92} limit themselves to the recognition of the complexity of the problem and the variety of causes of this affection.

Alexander Wallace, of Colchester, ⁶_{Jan. 14} believes that migraine is due to defective or insufficient excretion, partly of the liver, but mainly of the kidneys. The severity of the headache is directly proportionate to the acidity of the gastric fluids, and this can be greatly lessened by the free use of alkaline draughts. Solid food is undesirable, and rarely to be taken. Treatment may be begun twelve or twenty-four hours in advance of the time the migraine is expected to begin, with a view to abort it.

Leonard Corning, of New York, ⁵⁹_{Dec. 21, '92} suggests a new method of treatment based on the fact that chemicals applied, especially in a fluid state, to the lining membrane of the nasal cavity are speedily absorbed, producing in this way characteristic physiological effects. The author first washes out the nasal cavity with warm water, and then sprays the nasal mucous membrane with the drug he decides to use,—cocaine, morphine, atropine, etc. After the lapse

of ten or fifteen minutes he compresses the internal jugular veins at a point on a level with or a little below the level of the thyroid cartilage.

NEURALGIA.

Sternberg, of Pesth, ¹⁴_{July 25} has observed an unusual case of neuralgia of the trigeminus. The patient was a woman, aged 71, who had neuralgia of one of the branches of the trigeminus; the bridge of the nose, the left nostril, and the orifice of the nostril were covered with a thick layer of dirt, as she avoided washing this part of the face on account of the excessive pain caused by the slightest contact. The pain, upon pressure, extended into the nose, and as far as the inner angles of the eye. It did not occur spontaneously, but only upon touching of the region indicated. Salol affected improvement after three months. A rare case of neuralgia facialis is described by Hirschl. ⁵⁷_{Mar. 19} A man, aged 21 years, who had suffered from various affections of the eyes, and from periostitis, was seized with spasmus nictitans, followed by convulsions in the region of the facial nerve of both sides, so that the slightest irritation on the right side provoked tonic cramps in the frontal muscle, and on the left side clonic spasms of the orbicularis palpebræ. The spasms diminished under antispasmodics, until they could scarcely be produced by compression of the nerve-points of the trigeminus, while formerly they were produced by simple irritation of the lower branch of this nerve. (Report of Corr. Editor Morel, Ghent.)

Jarre ²²_{Sept. 12} believes that a certain number of cases of tic douloureux are caused by cicatrization of the peripheral portion of the nerve. These cicatricial lesions are produced chiefly by alveolar dental periostitis, and also by the periostitis caused by eruption of the wisdom teeth. The first desideratum is, therefore, to cause the disappearance of the cicatrices by scraping the bone and freeing the mucous membrane of the gums.

Féré, of Paris, ¹⁴⁷_{July} reports a case in which neuralgia of the face was associated with epilepsy. This has been observed before. The patient, a man 42 years of age, had for six years been suffering from neuralgia of the face. In the course of years the attack became more and more painful and frequent. At the same time spasms of the side of the mouth and of the eyelids accompanied the pains. By means of large doses of bromide of potassium the

epilepsy and neuralgia were cured in a few months, which would seem to show that the two affections had a common cause. Kornfeld,⁴¹_{July 94} reports a case of periodical neuralgia of the trigeminus which he considers as a clinical variety of hemicrania, resembling epilepsy. Hirschkron,⁵⁷_{p.1198} especially recommends bromide of potassium in this affection, from personal experience. Mann,³²⁸_{July} has examined forty-seven cases of ordinary sciatica and six cases complicated with scoliosis. He recognizes the fact that sciatica is frequently accompanied by paresis not only of the muscles supplied by the sciatic nerve, but also of those innervated by other branches of the lumbo-sacral plexus. When the sciatica is accompanied by bilateral paresis of the muscles of the abdomen, lordosis may exist,—a condition designated by the author as “ischias lordotica.” Nothnagel,²⁸³_{Dec.13, 92} reports a case of neuritis of the sciatic nerve.

Albert,⁵⁷_{Jan.1} discusses the articular neuroses, particularly those of the shoulder. These are very steady, appearing in connection with neurasthenia, and having no anatomical basis. Localized neuralgias of the members are not, at present, the subject of much research. For this reason the account of a case of cervico-brachial neuralgia by Van Ex,⁴⁵⁴_{May} is interesting. The pain was felt in the left shoulder and extended to both the back and front parts of the neck, and also to the upper lateral portion of the thorax, on the left side. It afterward became localized in the posterior external portion of the arm and forearm, with two principal points,—one at the bend of the elbow, below the passage of the radial into the musculo-spiral groove; the other slightly below the styloid apophysis of the radius. The affection developed suddenly, following fatigue, without any appreciable cause. It was of long duration and resisted all medicaments. Morphine alone, in large doses, succeeded in allaying the pain.

Chauffard, of Paris,¹⁴_{May}, presented to the Société Médicale des Hôpitaux a case of sciatica limited to the gluteal branches, and which disappeared very rapidly. Scoliosis, however, developed at about the same time, and persisted after the cure of the sciatica. As regards the pathogenesis of these rachitic malformations, although it would appear logical to admit a functional impotence of the extensor muscles on the affected side, the proof is difficult. The prognosis of these scolioses is quite unfavorable.

Mesnard, of Bordeaux,⁷⁸⁰_{Mar.} describes several forms of symp-

omatic neuralgia, and gives their differential diagnosis. While certain lesions may produce reflex neuralgic pains at a distance, other lesions intrinsically the same may, on the contrary, act directly upon a sensitive nerve-trunk. Even then certain symptomatological differences exist, which permit of a differential diagnosis between these affections and true neuralgia. The latter is really a disease of the nerve-cord itself, and not of its medullary nucleus. If the nerve-cord is locally painful it is because its vitality depends upon special nerves, and because the *nervi nervorum* may, most probably, arise from recurrent fibres, which, doubtless, are more particularly diffused at Valleix's points. The progression of the pain from the centre toward the periphery, is, in the opinion of the author, one of the most important differential signs in the diagnosis of symptomatic neuralgias; the muscular atrophy which sometimes occurs is another,—an atrophy which, in simple forms of neuralgia, occurs much later, when neuritis has succeeded to the neuralgia. These symptomatic neuralgias are simply reflex neuralgias. Certain forms of true neuralgia, of a reflex nature, do, however, exist: among these are certain forms combined with auto-intoxication or infection, and dystrophic forms associated with internal or external varices.

Richelot, of Paris, ⁴¹⁹_{Nov. 2, 16, '92} has called attention to severe pelvic neuralgias,—uterine neuralgia or hysteralgia. Batuaud, of Paris, ²⁴_{Mar. 5}, in 12 cases examined, found lesions of the uterus or its annexes in 11; but these lesions were very slight and not at all in proportion to the pain experienced by the patients, who were all hysterical or neurasthenic. The pain depended, in reality, upon their neuropathic condition. Grellety, of Paris, ⁵²⁷_{Feb. 23} recommends the local application of chloroform in neuralgia of every kind, even in sciatica, and reports a case of the latter affection, previously obstinate, which yielded to two applications of the remedy. Ross ¹¹²_{Feb.} reports good results from the use of agathin in neuralgia, in 0.50-gramme (7½ grains) doses three times daily.

Burton W. Swayze, of Philadelphia, ¹⁷⁶_{Dec., '92} reports three cases of sciatica treated by hypodermatic injections of osmic acid in 1-per-cent. solution, beginning with 10 minims (0.65 gramme) and continuing up to 25 minims (1.6 grammes) per day. This is the first time that osmic acid has been used in this manner, and the results were very satisfactory. Blomberg ³⁶⁹_{Aug. 7, p. 1413}; ⁶⁸_{Aug.} has used methy-

lene blue in the treatment of six cases of sciatica, administered by subcutaneous injection or in capsules. The injections invariably occasioned very severe pain, which disappeared in from one to two hours, together with the neuralgia. The author is of the opinion that the remedy is, on the whole, to be regarded as a useful addition to the treatment of sciatica.

Hertmann ¹¹⁶_{Apr. ; July 8}² describes his experience with methyl chloride, which has been greatly used in France. The substance in a liquid state is preserved in iron cylinders resembling siphons, and is allowed to escape from a distance of about half a metre from the affected part, which thereby is cooled to 23° C. (73.5° F.), and according to intensity of application more or less frozen to some depth. An intense reactive hyperæmia follows, frequently accompanied by blisters, in the course of a few hours. The author gives exact details of treatment in 29 cases, comprising 15 patients with sciatica, 5 with intercostal neuralgia, the remaining suffering from lumbago, coccygodynia, chronic rheumatism, etc. Twice treatment failed, possibly in one instance—the first experiment—owing to insufficient application, and in the other in consequence of pressure of an abscess on the nerve. The majority were absolutely cured or more or less relieved by each operation, the number of sprayings in each patient averaging two to three. The whole of the affected area should be covered with the white powder, which forms on the skin, one spraying often sufficing to produce a cure. In order to guard against gangrene, patients suffering from albuminuria and glycosuria might be excluded from this treatment.

NEURITIS.

Localized Neuritis. — Suckling ²_{Dec. 10, 98} reports two cases of dropped foot from sciatic neuritis, and calls attention to the great preponderance of left-sided over right-sided sciatica. He suggests that a loaded rectum may possibly be a predisposing cause of the neuritis. Nearly all cases of sciatica are due, in his opinion, to a greater or less degree, to neuritis. Moyer ¹¹⁵_{June} describes a case of neuritis of the median nerve consecutive to a knife-cut of the wrist: the wound having become infected, a phlegmon formed, which required to be opened. There was some uncertainty as to whether the nerve had been cut or whether the case was one of neuritis; but, as anæsthesia did not appear immediately after the

injury, the author decided it to be neuritis, and did not advise a surgical operation. Jacobs¹⁵¹_{Aug.} also reports two cases of neuritis of the median nerve, developed primarily and cured in three weeks in one case, and in twenty days in the other. The author ascribed the origin of the neuritis to the movements made with the tools used by the men in their work.

Th. Diller²⁴²_{May} has observed a case of neuritis of the great auricular nerve characterized by recurrent herpetic eruption along the course of the nerve,—a very rare case and worthy of note. Krauss¹⁷⁰_{Apr.}; ²⁴²_{Mar.} has seen two grave cases of neuritis from compression, interesting because the neuritis was bilateral, and because the symptoms were intense and scattered. In the first case the patient had had scarlatina at the age of 3 years, whooping-cough at 7, asthma at 14, myelitis at 23, exophthalmic goitre at 25, neuritis of both arms with paresis at 27, gastralgia and cardialgia at 39, and hysteria from puberty. In the other case the neuritis developed after ablation of the testicle, and affected both lower limbs.

Multiple, Peripheral, Toxic, and Infectious Neuritis.—Baret²⁴³_{July} reports three interesting cases of infectious neuritis. In the first the form was localized, and followed typhoid fever. It especially affected the cubital nerve. The second was an infectious polyneuritis, of syphilitic origin, involving the four members, and simulating anterior poliomyelitis. The third case was toxic, of alcoholic origin, and in the form of pseudotabes. Gilbert⁶⁷³_{Jan.} also reports two cases of polyneuritis, one being of infectious, the other of toxic origin. W. M. Ord, of London, ¹⁰⁷⁷_{Feb. 3} reports a case of peripheral neuritis of obscure origin, the interesting points being the occurrence of muscular atrophy and osteo-arthritis. These troubles were most marked in the upper limbs, and gave them the appearance of being broader than usual. Deviation of the fingers toward the radial side was also present, due to the atrophy of the extensors. The atrophy preceded the osteo-arthritis, and was clearly due to nervous lesions. Arthur Maude²_{Feb. 18} describes a case of peripheral neuritis due to alcoholism, in which there was exaggeration of the tendon reflexes. This symptom disappeared with the disease, the cure being brought about by abstinence. Clarke, of Bristol, ²_{Feb. 25} recalls the fact that he had reported two cases of exaggerated tendon reflex in connection with peripheral neuritis due to diphtheria.

Fiessinger, of Oyonnax, ⁹²_{Oct. 10, '92} describes two cases of polyneuritis following pulmonary and pleural suppuration. The first patient, a man of 39 years, was affected with left interlobar pleurisy, followed by the formation of a cavity. Purulent expectoration and irregular fever persisted for two months, when he was attacked by infectious rheumatism, with peripheral neuritis and muscular atrophy of the lower limbs. Recovery took place in four months. The second patient, a man of 43 years, had a perinephritic phlegmon of the left side, opening late into the bronchi. Peripheral neuritis of the upper and lower limbs ensued, with great pain and muscular atrophy, the recovery being very slow.

Little attention has hitherto been given to the multiple neuritis of the aged. Oppenheim, who was one of the first to study the subject, has continued his researches, and gives some very interesting results. ²_{Aug. 22} In his opinion, the symptomatology, development, and progress of the disease present certain peculiarities which separate it from the other types of neuritis, and warrant its being described as a special form. He has observed 8 cases, 6 of which he was able to follow for a long time. The features which give the disease a particular aspect are: (1) the absence of etiological causes, as poisoning or infection; (2) the markedly chronic evolution; (3) the absence or slight importance of symptoms of excitation, there being little or no pain, and the sensitiveness of the nerves on pressure being, ordinarily, not pronounced; (4) the incomplete development of motor symptoms, the motor troubles rarely going on to paralysis, and the anæsthesia rarely becoming absolute; (5) the integrity of the cranial nerves. Of these five points, Oppenheim accords real importance only to the first three. Another feature is the relatively benign character of the affection, which has a marked tendency to recurrence. This is surprising when the cause—arterio-sclerosis—is considered.

Krafft-Ebing ⁵⁷_{Jan. 22} reports a case of Erb's paralysis, probably consecutive to pneumonia, and which had the rare peculiarity of being bilateral.

Worcester ²⁷⁸_{Apr.} describes three cases of multiple neuritis; in one of these the origin was ascribed to poisoning by arsenic, but in the other two no known cause could be found. Riley ⁸⁵⁵_{June} gives the detailed history of three cases of a severe character and of varied

types. The first two were of the motor type, the third of the sensorial type, or pseudotabes. The etiology was also different,—the first case being of arsenical, the second of alcoholic, and the third of unknown origin. The question of the origin of neuritis, as may be seen, is still obscure. Th. Diller⁵⁹ gives the details of two interesting cases. The first was in a telegraph-operator, who had received a violent electric shock; but the circumstances of the accident, the mental condition of the patient, and the topography of the symptoms would seem to place the case under the class of hysterical hemiplegias, such as Charcot has described as due to fulguration. The second case was a classical example of polyneuritis extending to the four members, and due partly to cold and partly to cupric poisoning.

Brower⁴⁵¹ contributes two cases of rheumatic multiple neuritis. Grocco⁵⁸⁹ calls attention to the pseudo-rheumatismal phenomena of polyneuritis, muscular or articular, and proposes the subdivision of these forms of polyneuritis, localized in the muscles and articulations, into the four following groups: (1) the myalgic form; (2) the arthralgic form; (3) the arthritic form; (4) the arthrodeformans form. The influence of the nervous system in arthritis in general, and on the chronic type in particular, deforming or non-deforming, has long been recognized; but, according to the author, too little attention has been paid to the influence of the peripheral nerves,—much greater in these cases than is that of the spinal cord. Leyden⁶⁹ gives an account of what appears to be a case of typical polyneuritis following a prolonged course of inunction of mercury in the treatment of an attack of syphilis. When first seen by the writer the patient complained of tearing and burning pains in the upper and lower extremities, and distributed along the course of the larger nerve-trunks, with a feeling of numbness in the feet. He further exhibited a difficulty in walking and standing, sensory anomalies in the upper and lower extremities, and obvious ataxia, with Romberg's sign. All these symptoms and the typical distribution of the affection pointed clearly to its being a case of what is now well recognized as pseudotabes peripherica, in which the peripheral sensory nerves are principally, though not exclusively, diseased; while its sudden onset, the absence of the Argyll-Robertson symptom, the girdle-pain, and bladder trouble put locomotor ataxy out of the question. Leyden

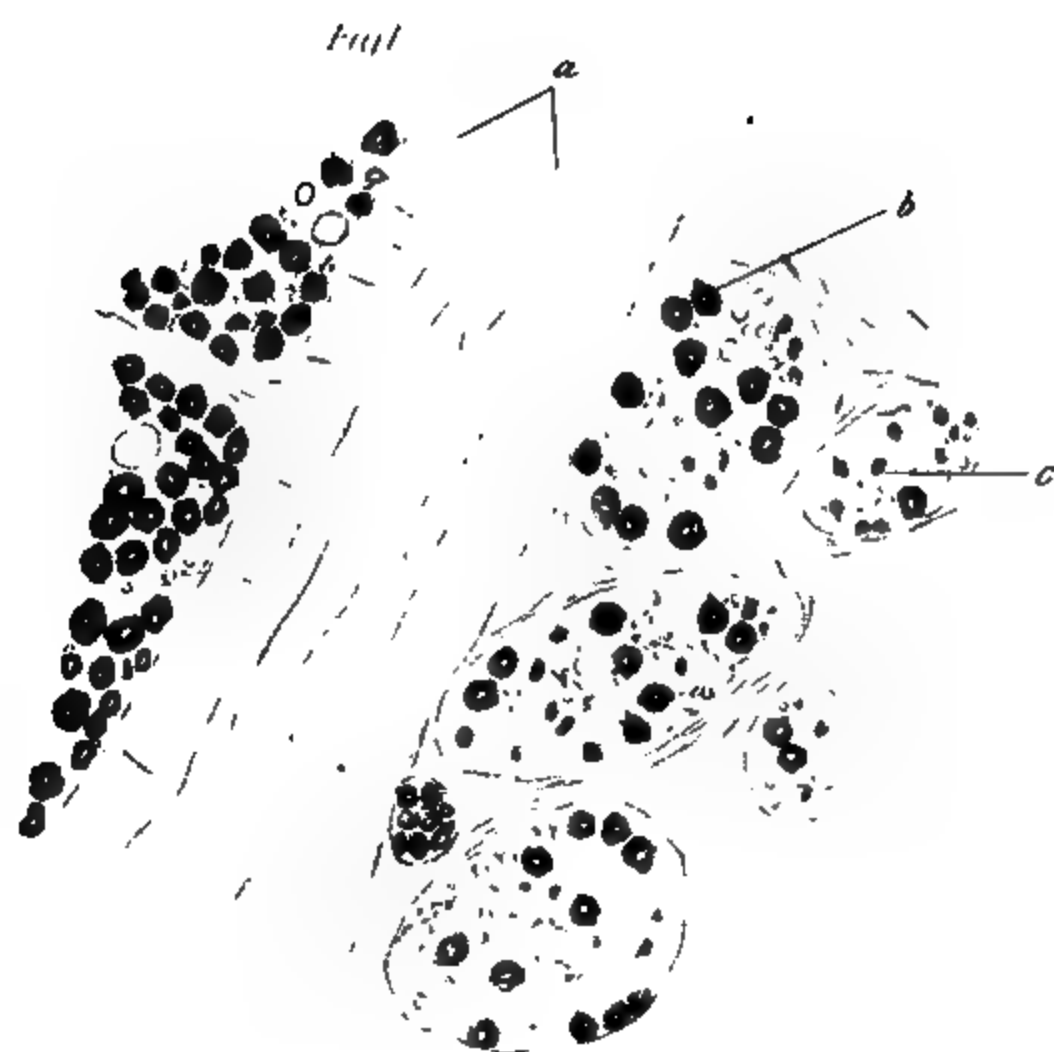
does not think that syphilis could account for the symptoms observed, and quotes the classical, experimental researches of Letulle on the effects of mercurial poisoning on the nervous system, as well as the writings of other authors, in support of his diagnosis.

Barrs²_{Feb. 4} gives an example of arsenical neuritis in a boy of 12, who had been submitted to a course of arsenic for the treatment of chorea. The knee reflexes disappeared during the disease and there was slight paresis of the lower limbs. The chorea was cured, but the reflexes did not return, and a month later the child was re-admitted to hospital with every symptom of polyneuritis of the superior members, which the author attributed to arsenic. Osler⁷⁶⁴_{Apr.} relates an analogous case in a patient with Hodgkin's disease, who for seventy-five days had taken Fowler's solution. Grant²⁸⁵_{Aug. 15} cited a case due to poisoning by arsenic, and in the discussion Jamieson reported a case of neuritis due to mercurial poisoning.

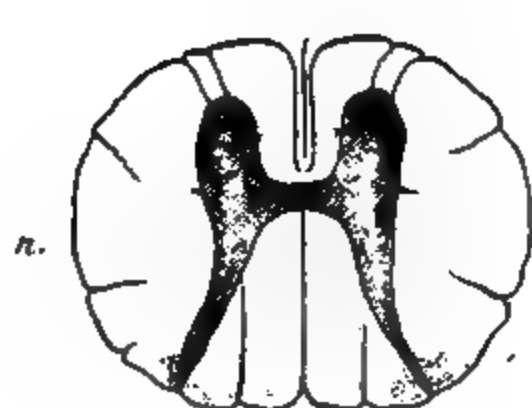
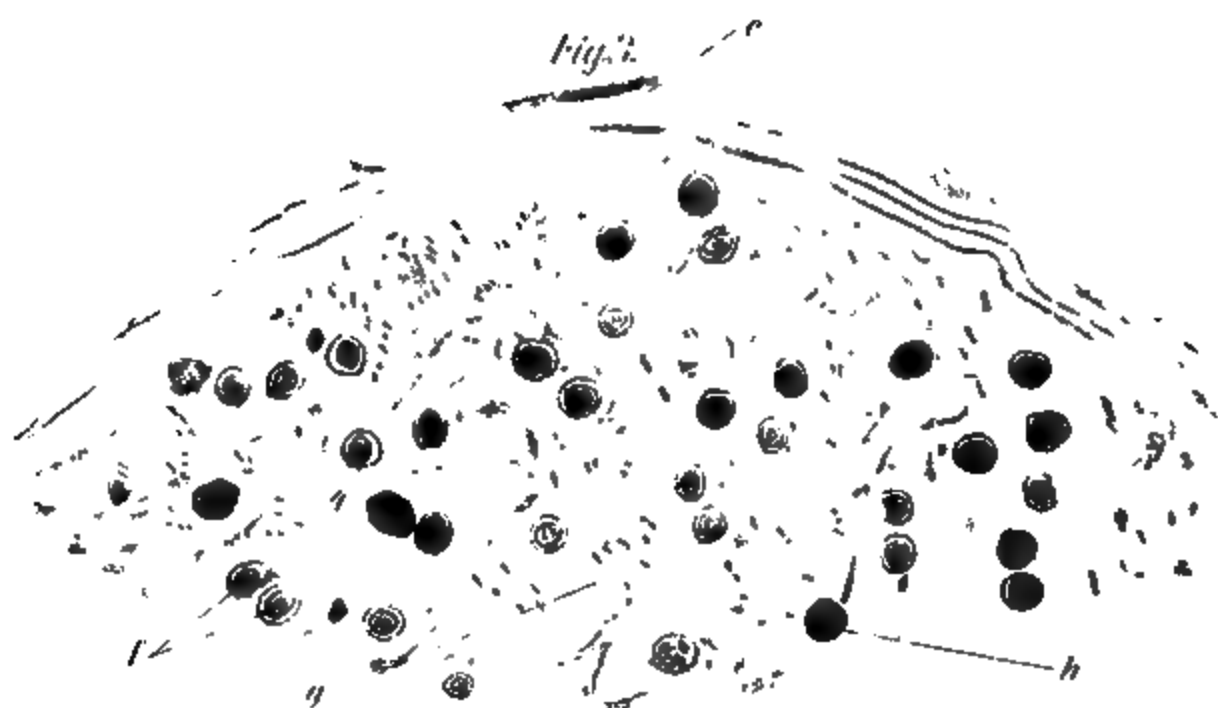
Alcohol is one of the principal causes of polyneuritis, and many authors report cases of this well-known form of the disease. Among these may be quoted Pagenstecher,¹⁸_{Aug. 15} Lyman,²⁰²_{Apr. 10} Cole Baker,²_{Feb. 25} Mark O. Daniel,²⁰⁷_{May} W. O. Bridges,¹⁰⁸_{Feb.} and Bradshaw.¹⁸⁹_{July} Jacob³⁶⁶_{July} describes an interesting case in a child of 5 years, due to the excessive use of beer.

Reunert,⁴¹_{July 20} has published an article based on 25 cases of alcoholic neuritis observed by him. Autopsy was held in 5 of the cases. The patients were divided into four groups: (1) typical polyneuritis, 13 cases; (2) localized muscular paresis and atrophy, 4 cases; (3) lighter forms, save for pronounced paralysis, and without atrophy, but with sensory disturbances, sensation of compression on the surface of the nerves and muscles, or anomalies of the reflexes, 5 cases; (4) marked involvement of the ocular muscles. Regarding the anatomical lesions, the author agrees with Strümpell as to the simultaneous appearance of the lesions in the peripheral regions.

Alfred Campbell,¹⁸⁷_{July} in a study of the pathological anatomy of alcoholic polyneuritis, asserts that the affection must not be regarded as exclusively limited to the peripheral nerves, but that it affects the central nervous system as well. Opinion is divided upon this subject. The author reports four cases. In the first two he ascertained the presence of important degenerative lesions in the



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cord and the pyramidal motor tract of the medulla oblongata and the pons Varolii. In the second case, especially, the vagus nerve was altered. The medulla was degenerated in the white substance, parallel with the third cervical pair. The roots were slightly diseased. Parallel with the sixth cervical, Lissauer's tract was more involved; and on a level with the third and sixth dorsal the cords of Goll, the tract of Lissauer, the lateral cerebellar fascia, and Gowers's tract were degenerated. The same changes were observed parallel with the lumbar cord, with more-marked alteration of the posterior roots. The peripheral, glosso-pharyngeal, and phrenic nerves had undergone parenchymatous degeneration. Similar modifications were observed in the fourth case, in a man of advanced age, with typical alcoholic neuritis. In all the cases the peripheral nerves showed also the usual lesions. Campbell is inclined to the belief that this is not a simple affection of the peripheral nerves, but a toxic process with extension to the central nervous system.

Thomas Oliver ⁶_{Jan. 10} expresses the same opinion in reporting the case of an old alcoholic and syphilitic patient, who, after a too-sumptuous banquet, was seized with a grave polyneuritis, which caused death in eleven days. The author believes that the intensity of the symptoms were not due to the acute neuritis, but rather to the awakening of some old syphilitic area and to the toxæmia which was the result of the recent excess.

Brie ¹⁶⁶_{Apr.} reports an interesting case of polyneuritic or cerebro-toxæmic psychosis,—an affection first described by Korsakoff. In Brie's case the disease came on without any toxic influence, whether alcoholic, lead, or arsenical, or any known constitutional affection. But the patient had shown in the beginning, following mental worry, intestinal disturbances of a persistent character, after which polyneuritis appeared, accompanied by prostration, weakness of memory, etc. The mental condition became improved, but the lower limbs remained contracted and the patellar reflex did not return. Brie attributes the disease to toxic agents in connection with the intestinal troubles.

Hale White ²_{Apr. 1} describes two exceptional cases of peripheral neuritis. One was due to septicæmia; the other was due to lead poisoning, and presented unilateral palatal and facial paralysis, and other rare symptoms, such as contracted field of vision, im-

paired muscle-sensibility, etc. It is probable, from the description of these rare troubles, that they were simply hysterical paralytic disturbances, as in a case before mentioned.

Déjerine¹⁴_{Mar. 22} communicated to the Société de Biologie a paper on two cases previously published as cases of Friedreich's disease. These two patients, brother and sister, affected from infancy with muscular atrophy, presented, in addition, very marked motor incoordination, ocular troubles, and, in fine, all the symptoms leading one to believe the cases to be those of Friedreich's disease. But the autopsy of the sister and a new examination of the brother convinced the author that the disease was hypertrophic and progressive interstitial peripheral neuritis of infancy,—a form of muscular atrophy observed and described for the first time by Eulenberg in 1856. At the autopsy of the sister the muscles were found to be atrophied; the nerves of the members were much greater in size than the normal, and at the same time harder; the increase was much more marked at the extremities. The anterior and posterior roots were double the normal size, soft, and easily separated. The posterior sheaths of the cord were sclerosed in the lumbar region, the entire radicular zone, and only in the cervical region of the cords of Goll. The increase in size of the nerves was due to hyperplasia of the connective tissue, a veritable sclerosis of the nerve. The myeline tubes of the nerves had completely disappeared at the periphery; they were intact at the roots, but surrounded by embryonal connective tissue. This is the first autopsy with histological examination in this still unknown and very rare affection.

H. Handford, of London,²_{Nov. 19, '92} describes a case of muscular atrophy following peripheral neuritis in the course of acute rheumatism; but he considers the neuritis as distinct from the rheumatism, and the two affections as originating from the same infectious cause.

Ducamp, of Montpellier,¹⁴_{Aug. 27} describes a spontaneous infectious disease of the rabbit, accompanied by peripheral neuritis, without lesion of the nervous system, manifested by diarrhœa, ascites, paralytic troubles, with atrophy of the flexor muscles of the anterior members and integrity of the antagonistic muscles. The paralysis may extend to all four members, when death ensues.

Bonnet, of Lyon,²⁰¹⁶ has collected the literature of acute infec-

tious peripheral neuritis, and adds fourteen new observations. James Ross has written a complete treatise on peripheral neuritis, with the aid of Bury and Williamson.¹⁶ Ströbe¹³ has studied the regeneration of the nerves after traumatism, experimenting with the great auricular nerve of the rabbit. Degeneration is a process affecting at the same time all the peripheral portion of the nerve; regeneration, on the contrary, is a process of centrifugal evolution. The growth of new nerve corresponds entirely with what took place in its development.

CHOREA.

Rachford, of Cincinnati,⁵⁸ considers scrofulous anæmia as an important cause, basing his opinion upon 61 cases. One of the cases gave a history of syphilis, 3 of scarlet fever, 13 of organic heart disease, 7 of anæmic murmurs, 14 of rheumatism, 29 of tuberculosis. He does not state that the anæmia of tuberculosis is the *most* important cause of chorea, but that it is an important etiological factor that has been greatly overlooked. Taylor¹⁸⁵ calls attention to the chorea due to lesion of the eye. The case reported to bear out his argument, however, seems to be a case of hysterical astasia-abasia.

Chorea is rare in children under 5 years. Harold Moyer, of Chicago,⁷⁶⁰ however, reports a case in a girl of 10 months. There was nothing to warrant its being regarded as symptomatic chorea. Leland, of Cleveland,⁵⁴⁷ reports six cases of chorea occurring in pregnancy, or due to excessive labor or to cold. Davis¹¹⁷ observed a case of chorea associated with mitral insufficiency, treated with success by digitalis. Thistle, of Toronto,⁸⁹ reports a case accompanied by rheumatism. W. M. Donald, of Detroit,¹⁸⁵ adds two new cases to support his belief that pathogenic conditions of the blood are the principal factors in the disease, and that hyperinosis, mentioned by Ogle, and common in rheumatism, anæmic states, and pregnancy, is the essential condition. Rachford,⁹ in a study of the etiology of chorea, based upon sixty-one cases, demonstrates that scrofulous anæmia is one of the most important, if not the most important, factors in the disease, since it was shown to be present in 48.2 per cent. of the cases. Charles Henry Brown¹ regards rheumatism as the etiological factor, and later²⁴² reports a very curious case of chorea with subcutaneous tumors.

These, under the microscope, were found to consist of granulated connective tissue, very soft, due to rheumatism, and showing the relation between the two diseases. (See cut.)

Barlow¹⁰⁷⁷_{Dec. 21, '98} reports an interesting case of paralytic chorea, of rheumatic origin, in a child of 9 years. The course of the disease was somewhat singular, beginning in the left hand and the face, then progressing, being most marked on the left side.

NODULES IN A CASE OF CHOREA. (BROWN.)
Journal of Nervous and Mental Diseases.

D. B. Lees¹⁰⁷⁷_{Nov. 2} published an interesting case, in a little girl, in which the patellar reflex was absent. In his opinion, this demonstrates that chorea is due to a toxic element in the blood acting upon the motor cells of the spinal cord.

The principal tendency of the time is to consider chorea as having an infectious origin. Triboulet²⁰¹² discusses this theory in relation to the chorea of Sydenham, classic chorea. He regards it as a disease *totus substantiæ*; in four-fifths of the cases infection

could be traced, thus explaining the nervous troubles resulting from poisoning "*à distance*," and the actual lesions, such as endocarditis, resulting from direct microbial action. A theory which calls into play the two elements, anterior infection and nervous poisoning, meets all the requirements of clinical and physiological study. Thiboulet rejects the anatomical, reflex, dyscrasic, neurotic, rheumatic, microbial, and specific theories, and states that the ante-choreic poisoning may depend upon various infectious agents, but that this infection does not determine the nervous character of the disease, except in patients predisposed to nervous affections. Pianese ⁵⁸⁹_{July 21} freely admits the theory of an infectious origin, apropos of an acute case of chorea in which death permitted of bacteriological and experimental researches upon 14 other cases. The author obtained a bacillus from the cervical cord of the first patient, which, inoculated in dogs, caused the appearance of the disease. This bacillus, found twice in the blood of the other 14 cases, could be isolated. Basing himself upon these researches, the author attempted to cure the disease by the use of salol, succeeding in 13 cases. This drug showed itself to be superior to all others known. The author proposes that the name of Sydenham's chorea be reserved for essential idiopathic cases, the other choreas belonging to entirely different groups. In his opinion, idiopathic chorea is of an infectious nature, and all other theories thus far advanced are incomplete and unsatisfactory. The infectious theory, from an anatomical stand-point, is sound, since no other lesions are found in the nervous system than those found in infectious diseases; from a bacteriological stand-point, since there is found, in the nervous system, a special bacillus pathogenic for microbes; from a clinical stand-point, since chorea is almost always preceded by premonitory symptoms of infectious diseases; and finally, from a therapeutic stand-point, since an antiseptic substance—salol—is of undoubted efficacy in the disease.

Dana, of New York, ¹_{Aug. 19} at the autopsy of a man of 26 years, affected with chorea from the age of 15, found, on microscopical examination, a conspicuous chronic leptomeningitis involving the vertex of the brain. Microscopically, this was found to be mainly a proliferating process, without exudation or much cell-infiltration. In the superficial layer of the cortex there was cellular infiltration

with degenerative changes. At this point a diplococcus was found. The micro-organisms were observed only in the deep layer of the pia and the superficial part of the cortex. Dana admits, in this case, the microbial origin of the disease. Wood, of Philadelphia, ⁹⁹_{Aug. 24} advances the opinion that chorea is due to spinal inhibition,—a theory supported by the action of certain drugs which have the power of combating this inhibition, and especially quinine, with which the author has made several experiments upon dogs affected with chorea. Duchateau ²²⁰_{Apr. 7} favors the theory of an infectious or toxic origin, supporting his views by clinical and experimental proofs.

Frank Fry, of St. Louis, reported, in 1890, a case of chorea ending in multiple neuritis, and recently ⁸²_{May 27} published a second. A girl of 15 years of age was attacked by acute rheumatism, accompanied by generalized choreic movements. While the upper extremities remained in a state of inco-ordination, the lower ones became paralyzed, with abolition of the reflexes, pain, and hyperæsthesia. She was completely cured in the space of six months. The author regards the case as one of rheumatismal neuritis.

Another complication of chorea is albuminuria, to which attention is called by Charrin, of Paris. ¹⁴_{May 10} Albuminuria is frequently observed in adolescents of too rapid or neuropathic growth. Bouchard observed a choreic patient of 16 years in whom there was a correlation between the appearance of the movements and the albuminuria, the latter being present during the day, and not in the morning after a night's repose.

Thomas, of Leipzig, ³⁶⁸_{Y. 24, No. 2}, ⁶⁷³_{Jan.} reported a case of nephritic chorea in an anæmic boy aged 14½ years. Upon treatment for the nephritis, the renal affection and the chorea disappeared. Guillemet ²⁰¹² has studied the cause of death in chorea. He observed 18 cases of death in 720 cases of the disease,—a percentage of 45. Death never occurred before the age of 7 years; the most frequent period was from 17 to 20 years, the predominance being very great in the female sex. Death was often due to cardiac symptoms, in other cases to cerebral hæmorrhage, and in still others only to the chorea, being preceded by varied and persistent nervous disturbance. Finally, in cases of a grave or moderately serious nature, death was sudden, and generally quite unexpected.

Breton²⁰¹² has studied the mental condition in chorea, which may be complicated by psychic troubles more or less pronounced in character. Some of these affect the moral sensibility, the intelligence, the attention, or the memory; others, much more grave, consist of hallucinations, night-terrors, and so-called choreic insanity. This last is unusual, and is ordinarily susceptible of cure, though it may lead to dementia. Psychic phenomena observed in the course of chorea are merely complications; chorea may awaken them, but it does not create them; their real cause is heredity.

Friis³⁷³_{p. 661, '92}, ⁶⁷³_{Feb.} has collected ninety-three cases of chorea. The disease appeared in four men after rheumatic fever, in one after faucial diphtheria. In the women the disease was caused by pregnancy, childbirth, or ovarian tumors. In most of the cases the mind was somewhat deranged, and in some of them there was an evident fatuity or a real psychosis.

Filatoff³¹_{May 13} describes a typical case of paralytic chorea, of which not more than twelve cases have been published. The patient was a girl of 4½ years, who was attacked by choreic movements after a reprimand from her father. The movements, at first very marked, gradually diminished, when muscular weakness appeared, paralysis of the members and the muscles of the neck, and finally incontinence of urine and fæces. The child could not speak. General sensibility was unaffected and the tendon reflexes increased. There was a tendency to improvement at the time of examination.

Epidemics of chorea are rare enough in our time to merit the attention of the reader to one reported by Hagenbach²¹⁴_{Sept. 15} that developed in a school to which it had been brought by a little girl.

Grasset, of Montpellier, ³¹_{Jan. 31} calls attention to a rare phenomenon in chorea, little known although already observed, which he calls static ataxia or tonus. Movements, choreic or athetotic in type, sometimes ataxic, were observed in two patients in his service at the hospital, both cases showing two varieties of the same symptoms, and belonging to what one might call tabetic chorea.

Hereditary Chorea.—Lannois and Chapuis, of Lyons, ²¹¹_{Jan. 1} publish a classical case of hereditary chorea. The father and mother of the patient were also affected with chronic chorea. W. F. Menzies²⁴²_{Oct. '92} gives the histories of two families, with genealogical tables. In the first there were not less than twenty-seven descendants

affected with chronic chorea; in the second there were thirteen. These two observations are extremely interesting in view of the evident heredity of this disease.

Kronthal and Kalischer⁷⁵_{Oct. 1, '92} report a case in which hereditary chorea developed in the patient's thirtieth year. Death occurred from fracture of the base of the skull, which was caused by a fall. The following are some of the pathological changes found in the nervous system: Thickening of the pia, with infiltration of small cells and formation of new vessels; lamination of pia over the convexity of the cerebrum, cerebellum, and front of the cord; adhesion of the pia to the cortex of the frontal and central gyri; increased number of vessels in the brain-cortex; deficiency of chromation in the ganglionic cells of the latter, blood extravasation and formation of pigment around the thickened vessels in the lenticular nuclei, and thrombosis in some of the vessels; insular sclerosis of the central gray matter of the mid- and hind- brain; unilateral degeneration of several bulbar nerve nuclei and roots; slight degeneration of the cells in the anterior cornua and Clarke's columns, and of the anterior spinal roots and peripheral nerves. In another case reported by Greppies⁷⁵_{Oct. 1, '92} there was no visible trouble of the nervous centres. Microscopical examination revealed numerous small areas, varying in size and extent, formed of cells slightly developed in protoplasm, and having a nucleus with a large granular nucleolus. They were found principally in the white substance of the frontal, central, temporal, and occipito-inferior convolutions, the cortical layers of the convolutions of the insula and the paracentral lobe, and the white substance of the cerebellum; they were less numerous in the ganglia of the base, the pons, and the medulla oblongata, occupying by preference the perivascular and pericellular spaces. Greppies considers these cells as originating from the proliferation of fine connective-tissue elements, and identifies them with the epithelioid cells described by Jastrowitz, Ball, and Friedmann. He compares the process with the non-purulent encephalitis of Hayem.

William Osler²⁴²_{Feb.} gives the history of two families affected by chronic hereditary chorea. In the first, four members of the first generation were attacked, and five of the second generation. In the second family, the mother and three children were affected.

Autopsy was made on one of the patients in the first family, and microscopic examination showed thickening of the vessels. The ganglionic cells were not more affected than in cases of a less-chronic character, associated with atrophy of the convolutions. There was no particular change in the protuberance and the medulla oblongata.

Brissaud and Hallion⁷⁸ publish an interesting case of infantile chorea and double athetosis. The onset, with successive temporary diminutions, resembled common Sydenham's chorea, but was, in reality, chronic chorea. There was permanent contracture of the muscles of the face, where slight irregular contractions were observed from time to time. Slight but independent contractions took place in the fingers and toes, similar in character. Speech was slow and somewhat scanning. The mental condition was good. This case, which in some respects may be diagnosed as chronic chorea, in other respects belongs to double athetosis. The authors also believe, with Gowers, Simpson, and Audry, that certain forms of chronic chorea, especially the infantile spasmodic form and double athetosis, represent simple expressions of a similar process. Double spasmodic hemiplegia belongs to the same category. Phelps²⁴² describes in brief five cases of hereditary chorea, and concludes that the affection is more common than is supposed. Heredity, which is more manifest than in any other disease, is the essential and principal cause.

Menzies¹⁶⁶ publishes six very interesting cases of Huntington's chorea, with the post-mortem examination of one of them. The changes noted in the cerebrum were: 1. A slight coarseness of the neuroglia in the first layer. 2. A slight thickening of the vessels. 3. Degeneration of the cells in all the layers. The degenerate cells were characterized by loss of processes, a granular condition of the protoplasm, and very often vacuolation of the nucleus or cell-body. This vacuolation was more abundant in the deeper than in the more superficial. 4. In hardened specimens spider-cells were detected in very small numbers near the vessels, in the white matter, but neither in fresh nor hardened specimens was there any appearance of miliary sclerosis. Sections of the medulla showed a thickening of the ependyma. In all parts of the cord Gower's tract and the direct cerebellar tracts showed scattered groups of degenerated fibres. The cells of the

gray matter were everywhere unusually pigmented and granular. In some sections no cells at all could be seen in Clarke's columns. It would seem that the degeneration of the cerebellar tracts and Clarke's columns was the characteristic lesion in this case.

Bergeron's Disease.—Bézy¹¹⁸_{Mar.} reports a case of this especial form of chorea, characterized by contractions which, instead of having the softness and arrhythmia of Sydenham's chorea, were brusque and rhythmic and took place almost exclusively in the head and members. It should be noted that the patient, a boy of 11 years, was hysterical. It is probable, although the author does not so state, that these cases are simply hysterical chorea, masked by the most varied symptoms, but little known in the time of Bergeron.

Treatment.—The beneficial influence exerted by certain febrile maladies on some neuroses is well known. Kohos²¹¹_{Oct. 16, '92} reports a case in which chorea affecting a lad of 13 years diminished perceptibly during an attack of erysipelas. The patient was afterward cured of both the chorea and the erysipelas at the same time.

Lannois, of Lyons,²¹¹_{Oct. 22, '92} basing himself upon certain analogous facts in regard to epilepsy, used the soluble products of microbes or substances having an effect similar to that produced by Liebreich's cantharidate of potassium. After having administered this substance in small doses, he gave hypodermatic injections of staphylococcus-aureus cultures to young choreic subjects, who were rapidly cured. A similar attempt in the case of an epileptic induced amelioration of the symptoms. The patients tolerate the injections without the least local reaction. Lannois considers that it would be preferable to experiment with cultures of streptococcus cultures, since erysipelas and suppuration streptococci appear to be the diseases having the most beneficial effect upon epilepsy. This is certainly a new and most interesting field of research.

Verhoogen⁸⁶⁸_{July 22} proposes the use of static electricity, which in his hands was followed by good results in two cases. Solles¹⁸⁸_{Dec. 4, '92} in one case effected a rapid cure by means of purgatives and iodide of potassium. Deydier²¹¹_{Apr. 16} reports a case in which injections of testicular fluid led to recovery; Montagnon²¹_{Sept. 17} succeeded in curing a case of rheumatismal chorea in thirty days by means of injections of cerebrine. In a case of Anderson's²¹³_{Aug.} the curative

agent was exalgin. Moncorvo observed good effects from the use of the same drug in two cases. ⁶⁷³_{Oct., '92} Quinine, in the hands of Dorland and Potts, ¹¹²_{Aug.} succeeded in seventeen cases, large doses being used. Scurr ³³⁹_{Mar.} recommends arsenic exclusively, and Barrs ⁶_{May '20} makes hypnotics his basis of treatment in certain cases. Finally, hypnotism has not failed to be recommended in the disease, at a time when it is regarded by some as a universal panacea. Lopez Villalonga ⁷⁷³_{June '20} and Gibert, of Havre, ²⁰³_{Feb. 17} publish cases where its effect was marvelous.

NEURASTHENIA.

Huchard, of Paris, ³⁶⁰_{Dec., '92} thinks that neurasthenia is not always a nervous disease with multiple or general manifestations, but may sometimes display itself by a single peripheral or visceral symptom, whence the name "topoalgia" given by Paul Blocq to these localized neurasthenic pains. They are often persistent, especially when located in the stomach or heart. Huchard designates these cases by the term "local neurasthenia." Näcke ⁷⁵_{Jan. 1}, ⁶⁸⁵_{Mar.} describes a rare symptom of neurasthenia, viz., rumination following intellectual overwork and grave poisoning by iodoform. Rumination occurred from fifteen minutes to two hours after the repast. There was no dilatation of the stomach nor digestive trouble. There was a remarkable parallelism between the rumination and the neurasthenic trouble. Näcke concludes that rumination may be a symptom of neurasthenia, explained by an exaggerated irritability of the gastric mucous membrane as regards certain mechanical or chemical stimulants. A. Mathieu, of Paris, ²⁰⁷³_{'12} according to the predominance of symptoms in such or such an organ, distinguishes the forms affecting the nervous system (cerebro-spinal, spinal, peripheral), the digestive apparatus (nervous dyspepsia), the circulatory apparatus (cardiac neurasthenia), the genito-urinary apparatus (genital neurasthenia). It is important to ascertain whether the case be one of simple neurasthenia without degeneration, or one with added neurosis. In his opinion, as in that of Charcot, neurasthenia is the direct expression of a particular state of neuropathy; it is the primary condition, and neither dyspepsia, enteroptosis, dilatation of the stomach, or auto-intoxication of gastric origin have the general importance that certain authors have endeavored to ascribe to them.

Eulenburg, of Berlin, ¹⁰⁰_{May 15} calls attention to the measures employed for the prevention of conception and imperfect intercourse as causes of neurasthenia. According to him, it is natural to suppose, in the majority of cases, a direct functional injury to the spinal centres immediately affected (genital centres) and to the neighboring spinal centres, in consequence of the abnormal action of the excitatory mechanism; which injury, of course, increases in importance in proportion to the frequency with which the noxious influence is repeated, and to the original or acquired disposition toward a condition analogous to that of "irritable debility."

Weber, of New York, ¹_{Aug. 19} gives the history of some cases of severe spinal neurasthenia brought about by protracted mercurial inunction, and another caused by the prolonged daily use of small doses of Carlsbad salts.

Extending, perhaps, a little too far past the boundary-line of neurasthenia, Lefevre ²⁴_{Mar. 28} describes under this name states of weakness consequent upon the abuse or accidental use of toxic substances, as morphine, alcohol, cocaine, ether, etc.,—conditions comparable to those following influenza, typhoid fever, or other infectious fevers. In the same spirit, Fournier, of Paris, ¹⁴_{May 21} reports a case of hystero-neurasthenia of syphilitic origin, coming on in a woman of 23 years after an attack of syphilides. Antisyphilitic and antineurasthenic treatment caused an improvement at the end of two months.

Fournier ¹⁰⁰_{Sept. 5} has studied the clinical forms of syphilitic neurasthenia. This affection occurs very frequently in the course of syphilis, first showing itself in the secondary period, toward the fourth or fifth month, especially in women. It is the secondary form of syphilitic neurasthenia, and to the affection may be added hysterical symptoms, as previously reported in this article by the same author. Neurasthenia appearing at the tertiary period is less common, sometimes accompanying the tertiary symptoms and sometimes appearing alone. The abortive form is the most painful, the most persistent, and the most often unrecognized. The principal features of the headache, which is the only symptom, are its long duration and the cerebral disturbance, which is greater than the real pain. It is diurnal, and thus allows the patient to sleep calmly at night. The complete form of tertiary neurasthenia

is a reproduction of the picture of irritable debility of Beard. Kowalewsky,⁶⁸ in a paper on neurasthenia and syphilis, concludes that four classes of neurasthenia occur in syphilitics: (1) hereditary syphilitic neurasthenia; (2) acquired syphilitic neurasthenia; (3) inanition neurasthenia, caused by too-energetic antisiphilitic treatment; (4) psycho-traumatic neurasthenia, caused by the mental and moral depression produced by the knowledge of the presence of the disease. Each form requires a special treatment.

Mesnard, of Bordeaux,⁷⁸⁰ calls attention to the vesical symptoms in neurasthenia and hysteria,—symptoms grouped under the rubric of urinary psychopathies and well known at the present day. Th. Diller¹⁶¹ aptly remarks upon the frequency with which neurasthenia is found to be the beginning of another disease, and upon its relation to insanity, and especially to melancholia.

Under the name of “the American disease,” Irwin, of Louisville,²²⁴ describes the neurasthenic condition which often supervenes in men of 45 or 50 years, and which he attributes to the overpressure of modern life. If the clinical picture given by him be not open to criticism, his denomination of the disease is, for it may also be called the European disease, and especially the French disease, since it is a common affection in France. Boissier has studied the relation between neurasthenia and depressive insanity, and, from sixty cases observed, formulates the conclusion that neurasthenia is a morbid entity, of which the constant symptoms—headache, insomnia, distress, tachycardia, disorders of the general sensibility, depression—correspond to those of melancholia.

Pitres, of Bordeaux,⁸ calls attention to the various motor disturbances in neurasthenia that facilitate the diagnosis, but are too often erroneously called hysterical. Tremor, the most important, exists in two-thirds of all cases, and is identical with that of exophthalmic goitre. Other motor troubles exist, though less frequently: cramps, without apparent cause; muscular weakness; rhythmic spasms of the neck, tongue, and diaphragm, and constriction of the œsophagus. Abasia may also be a symptom of neurasthenia, without any hysterical signs. Eight times out of ten Pitres has found the pupils to react well to light, and to be refractory as to accommodation,—the reverse of the Argyll-Robertson symptom.

Löwenfeld⁷⁵ discusses the objective symptoms of neurasthenia,

and especially notes the following: pale complexion, emaciation, pronounced redness of the conjunctiva and the ears; dilatation and frequently transient irregularity of the pupils; incomplete closure of the eyelids; fibrillary tremor of the orbicularis oris and the musculature of the tongue; weakness in convergence of the eyes; unconscious and aimless movements of the extremities; increase of the skin and tendon reflexes; mechanical irritability of the facial nerves; weakness and indistinctness of speech; manifestations of paraphasia and verbal amnesia; acceleration and irregularity of the heart's action; nervous dyspepsia; nervous constipation and diarrhœa; polyuria, phosphaturia, and oxaluria.

The treatment of neurasthenia is the subject of continual research, and arouses more or less ingenious methods. First come the testicular injections of Brown-Séquard, then the injections of nervous substance by Constantin Paul, and the injections of artificial serum by Chéron, ¹⁴_{Aug. 20} who attributes the disease in women, to a great extent, to relaxation of the broad ligaments of the uterus and to dilatation of the stomach. Crocq, of Brussels, uses saline injections, with phosphate of sodium as a base, the base in Chéron's treatment being sulphate and phosphate of sodium. According to the latter author, ¹⁰⁰_{Sept. 7} these injections all act in the same manner, by increasing arterial tension, always lowered in neurasthenia. Constantin Paul, of Paris, ¹⁴_{Apr. 26} recommends the injection of diluted gray brain-substance, which, according to him, is a tonic *par excellence*, the first result of which is to give the patient a little sleep,—a necessary condition for the transformation of alimentary into physiological force.

Insomnia is one of the most constant and painful symptoms of neurasthenia. Hedley, of Edinburgh, ⁶_{June 10} reports a case, in a physician, in which cure followed the use of transcerebral galvanization with 2½ milliampères on the forehead and the nape of the neck for half a minute, and 5 milliampères from one ear to the other during a space of one minute. In ten days the patient was able to sleep without hypnotics, and was cured in 30 *séances* and after 12 faradic baths.

BERIBERI.

The etiology of beriberi is always a subject of dispute. Albert Ashmead, of New York, ¹¹²_{Dec. 28} had occasion to study the disease

on board of a ship coming from the Philippines with a cargo of sugar. He states that the southwest winds have a certain influence, popularly recognized, upon beriberi. Physical fatigue and weakness is an important factor, as is carbonic-acid gas and toxic matters arising from the fermentation of large quantities of sugar. In this respect the sugar of Brazil presents more danger. The author does not believe, with Takaki, that change of diet will extinguish the disease. According to him, inhalation of carbonic-acid gas is the most injurious, without being the only cause. Fatigue, caused by insufficient food lacking in albumen, by climate or any other influence which weakens the muscular fibre and peripheral nerves, on the one hand, and toxic influences, such as carbonic-acid gas inhaled for a long period, are essential factors.

The same author⁴⁵¹ publishes a study upon the kakké heart. In a great number of cases of beriberi the first sound is observed to be so prolonged as to be considered by some authors as a sanguineous murmur. Ashmead reviews the various opinions of physicians in Japan. Besides this systolic murmur, almost always present, there is also violent palpitation due to myocarditis, which often causes death, as does paralysis of the heart from alterations of the pneumogastric, recurrent, and vasomotor nerves, found in the disease.

Thanks to the preventive measures taken by the Japanese naval service, beriberi has considerably diminished.²²_{Oct. 22, '98} In 1884 there were seven hundred and eighteen cases, in 1885 and 1886 the number diminished greatly, and in 1888 and 1889 there was not a single case. This amelioration had a happy moral effect upon the patients in general; the proportion, which was 3.65 in 1884, fell to 0.39 in 1889. From the point of view of social economy, this is an enormous difference, and great honor is due to the Japanese physician for his efforts in this direction.

George Giles, of Assam,¹⁷⁴_{Apr.} gives a description of the anchylostomum duodenale, a human parasite found in tropical countries and especially in Ceylon, where its presence in the human intestine gives rise to grave anæmia, often ending in death. This affection, common in Assam under the name of Kala-azar, or beriberi of Ceylon, bears no resemblance to the true beriberi of Ceylon, now almost extinct, except a cachexia, often accompanied by muscular weakness and dropsy. This terminology of the beriberi of

Ceylon should be taken into account in order to avoid confusion, and the name of Kala-azar should be reserved for the anchylostomiasis, if it is desired to give this disease its popular name.

Jameson²²_{Sept. 20} observed seven cases of beriberi in lascars on board a ship going from Liverpool to Rangoon. These cases have a special interest, as being the first to occur on an outward-bound vessel; and the question comes up, Was the disease contracted in Liverpool, or did the lascars carry the poison in their systems from Rangoon, thus prolonging the period of incubation from four or five days to seventy-five or eighty days?

According to Max Simon⁶_{Mar. 4} beriberi may cause death in three ways, these being, in the order of frequency, (1) by failure of the heart from peripheral paralysis of its special nerves; (2) by suffocation from congestion and œdema of the lungs; (3) by effusion into the pericardium.

TREMORS.

Dana, of New York, ⁹_{Dec. 17} has studied tremor in twenty-six cases of various forms of nervous disease by the aid of sphygmographic tracings procured by the method suggested by Peterson. The intensity of a tremor is modified in three ways,—by putting the muscles in extension, in relaxation and rest, or in volitional movements. The first is a factor in functional and cortical neuroses, the second in degenerative spinal neuroses, and the third in organic disease. As regards the diagnostic significance of the various characteristics of tremor and the assignments of different kinds to different neuroses, his conclusions are about as follow:—

In acquired and cortical neuroses the tremor is fine, vibratory, continuous, and general. The rate is from 8 to 12 per second, averaging 10 or less. In degenerative neuroses the tremor is coarse, segmental, and intermittent; it usually affects one extremity or one half of the body more than other parts. The rate is from 3½ to 6½,—that is, either one-third or one-half of the normal rhythm. In the organic nervous diseases, tremor, when present and due to the lesion, is coarse, jerky, intermittent, and intentional, and confined to certain segments of limbs.

Popoff²_{May 1} reports the case of a man, aged 21 years, who from infancy had been subject to attacks of rhythmic tremor in his lower limbs, specially affecting the flexors and extensors of the

feet. The sense of touch was impaired below the iliac crest and Poupart's ligament; sensibility for pain and temperature was abolished over the same area. Above that limit all forms of cutaneous sensibility were intact. Each visual field was greatly reduced both during the attacks and in the intervals, the other sensory derangements persisting only during the tremor, which was evidently hysterical. Glynn¹⁸⁷_{Jan.} and Delmas¹⁸⁸_{July 9} have also reported several cases of hysterical tremor. J. Hendrie Lloyd, of Philadelphia,⁵_{Sept.} describes a case complicated by severe anorexia. Lemoine, of Lyons,²¹¹_{Mar. 19} publishes an interesting case of congenital tremor of the superior extremities. In the immediate antecedents nothing abnormal was found, but an uncle was epileptic. The visual field was concentrically contracted, but there were no other hysterical stigmata. These two facts would cause the disease to be classed in the category of convulsives. F. Regnault, of Paris,¹⁴_{Aug. 20} reports an interesting case of hysterical tremor in a man whose great-grandfather, grandfather, uncle, two aunts, mother, and sister suffered from tremor. The subject himself is neurasthenic. Etienne, of Nancy,¹⁸⁴_{May 1} cites an analogous case.

Fredk. Clark⁵⁹_{Jan.} reports a case of mercurial tremor, and disputes the conclusions of Charcot that there is no mercurial tremor, and that the symptom so called is but a manifestation of hysteria developed under the influence of mercury. The author states that there was no hysteria, but fails to give any details as to the state of sensibility of the patient, or as to the absence or presence of other hysterical phenomena.

MUSCULAR DISEASES.

Myositis.—Raymond, of Geneva,¹⁹⁷_{Nov. 30, '92} after exposing the existing knowledge upon this subject, reports ten interesting cases warranting him in concluding that myositis may be caused by traumatism, by intellectual fatigue, by rheumatism, and probably by damp cold, outside of all predisposition to rheumatism. In all other cases it is chronic from the outset, and gives rise to varied and painful functional symptoms, and until now has often been unrecognized. Its differential diagnosis requires very exact palpation of the muscular system, the specific medication being massage.

Eugene Smith, of Buffalo,¹⁷⁰_{Apr.} reports a case of acute inflammation of the psoas, which is interesting not only from the fact that

acute psoitis is rare, but because it was followed by myositis of both sides, and was not due to any traumatic or septic cause. The psoitis was of rheumatismal origin, but diagnosis was not made until after the appearance of endocarditis, the author hesitating as to whether it was a suppurative psoitis of probable tuberculous origin and demanding a treatment radically different.

Hackenbruch⁷⁶¹ gives the following points as elucidating the diagnosis of interstitial myositis: Subacute onset; acute, spontaneous, and increasing pain in the diseased extremity; sensitiveness to pressure, swelling and induration of the muscles, and premature contracture. The muscles then seem to be agglomerated and hard like wood, somewhat sensitive, and adherent to the underlying bone; the articulations are stiff, without fluctuation; the electro-excitability of the muscles is greatly altered, and the tendon reflexes diminished or absent. There is disturbance of sensibility in the skin, which eventually becomes thickened and œdematous, and the seat of spontaneous, lacerating pains. Very probably the inflammation is due to an organic virus. (Report of Corr. Editor Morel, Ghent.)

Muscular Atrophy.—Scoliosis being present in certain neuropathies, its occurrence is to be considered also in muscular atrophies. Hallion²⁰¹² regards it as taking a light or even insignificant form in myopathy. Sacaze, of Montpellier,⁹⁴ reports the first known case of very marked scoliosis in a case of primitive atrophic myopathy. Apart from the scoliosis, the case is interesting in other respects. The atrophy approached the Leyden-Möbius type, slight hypertrophy of the inferior members having preceded it. Three successive generations were affected with the same form of atrophy, which is uncommon. The evolution was nearly the same in all three subjects. The author attributes the scoliosis to a trophic alteration of the vertebræ, probably of the same nature as the muscular lesion.

Charcot, Marie, and Guinon have shown the narrow boundary-lines between the different types of myopathy, and that in fact they are but different forms of a single affection. In support of this view, Guinon, of Paris,⁴⁵² publishes two new cases of progressive myopathy, of the Landouzy-Déjerine type, with pseudo-hypertrophy of certain muscles. In the first case the face was markedly affected, but without the orbicularis-palpebrarum sign,

and there was pseudohypertrophy of several muscles of the face, the deltoid, and the calf of the leg. In the second case the myopathic facies was typical. There was also pseudohypertrophy of some muscles, especially of the right deltoid and of the triceps of the left thigh. The possible combination of pseudohypertrophy with the scapulo-humeral form, as in the scapulo-humeral or juvenile form of Erb, proves the identity of the different forms of myopathy. The size of the muscle is nothing, its functional impotence everything, in muscular atrophy, the evolution being either on the side of hypertrophy or of atrophy, either combined or isolated.

Prautois and Etienne, of Nancy, ⁹²_{July 10} report a case of the Landouzy-Déjerine type in a child of 7 years, interesting on account of the early appearance of the disease, of the deformity of the skull,—the occiput being flattened on the left side,—and on account of the absence of heredity. Orazio d'Allocco ⁵⁹⁶_{Dec., '72} publishes an abnormal case of the same type, which presented the singular characteristic of being limited to one side, and of being accompanied by atrophy of other tissues. The author believes that the nature of this type is not myopathic, but neuropathic, the consequence of a chronic polyneuritis, or of a systematic degeneration of trophic nerves, not only of the muscles, but of other tissues as well. It would seem, from the description, that this was a case of facial hemiatrophy rather than one of muscular atrophy of the Landouzy-Déjerine type. Williamson, of London, ⁸⁰_{Mar.} reports three cases of hereditary myopathy of the facio-scapulo-humeral or Landouzy-Déjerine type. A brother and sister were affected with this type of the disease, the mother having only the face affected. Marinesco and P. Blocq, of Paris, ⁹⁴_{No. 74} report two cases with autopsy, in which every point described by Landouzy and Déjerine were observed. The case was undoubtedly one of primitive myopathy, without appreciable alteration of the nervous system. The nerves showed no particular lesions. Sections of the radial nerve were remarkable for the clearness with which could be observed what the authors called "tubular systems." The areas formed by these systems predominated over the rest of the nervous striæ by reason of the clear color when stained with osmic acid. They were limited on the periphery of the nervous fasciculus by a lamellar formation resulting from hyperplasia of the deeper layer of the perineurium;

and centrally, by the intra-fascicular tissue of the nervous fasciculus. The space thus circumscribed, forming the *ensemble* of the system, was occupied by bodies resembling transverse sections of tubes, in twos or threes, and having a wall and contents clearly outlined. The wall was composed of stratified fibrillary lamellæ, and the contents were apparently cellular elements. Between the wall and its contents there was no evidence of protoplasm. The authors are led to believe that these formations are nervous tubules profoundly altered. They may constitute an organic apparatus in the nerves of man, in the normal state, originating in a transformation of certain nervous fibres, for some special end which is yet to be determined. The authors discard a spinal theory in hereditary myopathy, considering the loss of trophic nervous power in primitive myopathy as the result of a primordial disorder of nutrition in the muscular fibre, transmitted by heredity, the first cause of alteration. Its appearance in infancy arises from the muscular activity of that period of life, its localization in certain particular muscular groups corresponding to the embryological development of muscles (Babinski and Onanoff). It follows that at a given moment, by a veritable chemotaxic inversion, the myoplasm becomes incapable of assimilating elements of nutrition from the lymph surrounding it, when the sustaining tissue, by its great nutritive power, monopolizes the elements which have become too abundant.

Philip Zenner, of Cincinnati, ⁵³_{Nov. 28, '98} has observed several cases of progressive muscular atrophy. Two were of spinal origin (Aran-Duchenne type); a third was of the somewhat rare peroneal type; a fourth and fifth were in the father and sister of the third case, both being affected in the same manner, the atrophy commencing in the lower members, reaching the superior members in seven or eight years, and first attacking the extremities. The sixth case was of the juvenile form of Erb; the seventh and eighth were cases of pseudohypertrophic paralysis. Wild, of Manchester, ²_{Nov. 4} showed preparations from a man aged 64, who died from chronic renal and cardiac disease, with extensive calcareous degeneration of arteries. There was marked atrophy of the muscles of the hands, simulating very closely a case of muscular atrophy from peripheral neuritis. The nerve-trunks and finer branches in the muscles were normal, and the atrophied muscles showed no signs of the degenerative changes, but the arteries of

the forearms were almost occluded by the calcareous changes. The case was one of simple atrophy of muscles, due to deficient blood-supply.

Joffroy and Achard, of Paris, ⁴⁵⁷_{v. 2, p. 780, Dec. 31, '92} attempt to reconcile the different theories which have been held with reference to the occurrence of atrophy after hemiplegia. In two cases examined by these authors, changes were found in the anterior-horn cells, so far confirming Charcot's views. To explain the different conditions and reconcile the different theories, they presume that, in the first place, on account of the lesion of the pyramidal tract, there is stimulation of the cells of the anterior horns, giving rise to contracture. If this stimulation is succeeded by exhaustion, atrophy results, but in this there are several stages. At first there is simple muscular atrophy, the nerves not yet being appreciably altered, and the anterior horns and intra-muscular ending being anatomically intact. Later, degeneration of the motor nerve and of the peripheral nerve-endings sets in; and, last of all, the cells in the anterior horns undergo visible atrophy.

Roth ¹²⁶_{July 15} has studied the pathogeny of progressive muscular atrophy, and believes that, considering the muscular lesions, this individual atrophy of fibres, coincident with individual resistance of other fibres, cannot but be due to conditions peculiar to certain fibres. This form of the disease does not harmonize with the idea of a nervous lesion, nor with the hypothesis of a general cause. The origin must rather be sought for in embryonic life, in the alteration of nuclear protoplasm of the germinal cells,—a theory supported by the fact that muscular atrophy is often hereditary, and, like all diseases of the kind, depends upon an anomaly in the nuclear protoplasm of Ziegler. Roth, therefore, leans toward the belief that muscular atrophy is a new phylogenetic anomaly.

It is generally admitted that the reaction of degeneration is absent in myopathy. This is not always the case, however, and Hoppe ⁶⁸_{Oct., '92} publishes two cases of progressive myopathy, one of the Landouzy-Déjerine type, the other pseudohypertrophic, in which a certain number of muscles showed this reaction. These are not the first observations of this kind, as authors who pay especial attention to this disease have sometimes, though exceptionally, met with this phenomenon. Thomas ⁷⁶⁴_{Dec., '92} publishes a case of muscular atrophy in a little girl of 4 years, which he considers as

presenting the type called by Hoffmann neurotic progressive muscular atrophy. The muscles of the eyes were weak and the papillæ a little pale; the head fell forward, the back was arched with lordosis. There was a want of equilibrium in the gait, and the feet turned inward. There was no marked muscular atrophy or hypertrophy. The shoulders did not droop. The calf-muscles were somewhat contracted and seemed firmer than usual. Electric reactions were normal. On account of the youthfulness of the patient it is hard to say whether the case was really one of progressive muscular atrophy.

Münzer, ²⁹⁷_{Aug. 26} in a case of progressive muscular dystrophy, found fatty areas in the middle of two degenerated muscular sheaths,—a fact not hitherto observed. Erben ⁴¹_{June 29} observed a case of amyotrophic lateral sclerosis, in which the participation of the central convolutions in the medullary processes was evident.

Déjerine ²¹²_{Aug. 10} cites the case of a man of 44 years, in whom there was a rare combination of two different forms of muscular atrophy,—the one being of myelopathic and the other of myopathic origin. The muscles of the legs were atrophied, with considerable deformity and varus equinus, the result of an infantile paralysis, a poliomyelitis of the lumbar region, the evolution of which had long since ceased. The second form of atrophy began five years ago, and principally occupied the scapulo-humeral region; the muscles of the hand were intact, while those of the shoulder were considerably atrophied. This form belongs to the scapulo-humeral type, which is of myopathic origin. It was not a fresh attack of poliomyelitis, as is sometimes seen, since in these cases the atrophy strikes the extremities and follows an ascending course.

Donald Fraser ²¹⁸_{Aug.} reports two cases of muscular atrophy, of traumatic origin, the pathogeny of which is altogether different. In one of them a man had his arm injured by carrying heavy packages with a strap; the other had his hand and arm drawn in between two heavy wooden rollers of a washing-machine; very fortunately, the upper roller was not fixed, and his arm lifted it. The arm was drawn in about as far as the deltoid. In the first case flickering contraction of the muscles in the scapular and pectoral regions were observed. The atrophy affected both arms very soon after the accident, and extended to the shoulders within a

week or two; it was never at any time accompanied by pain or uneasy sensations of any kind. This case of chronic progressive muscular atrophy may be regarded as one in which the spinal changes are merely secondary, the primary affection being the changes in the muscles. In the second case the conditions were more distinctly due to an ascending neuritis. Comparative tests of both arms and both shoulders showed diminished irritability of those of the right. Sensations as to pain and temperature were distinctly diminished over the whole area occupied by the trapezius, deltoid, biceps, and triceps. This case presented most of the usual signs of neuritis affecting the vasomotor, sensory, and motor nerve-tracts, and is in contrast with the first case, where the lesion was purely motor.

Muscular atrophies following arthropathies or simple articular contusions are now well-enough known, but these amyotrophies may even be produced when the traumatism affects not the articulation, but its vicinity, and even a point somewhat distant. Charcot²¹²_{July 10} reported three cases proving this fact. Hoffa⁸⁴⁴_{Nov. 19, '92} has been led to adopt the opinion of Vulpius, that muscular atrophy following arthritis is reflex. Kahane⁵⁷_{Dec. 11, '92} believes that a combination of various factors enters into the etiology of these cases.

Weiss⁴¹_{Feb. 9} reports a case belonging to Benedikt's third group, of arrest of development with atrophy, due to passive processes following acute and active ones. Eskridge, of Denver,²⁴²_{Apr.} reports a case of idiopathic muscular atrophy appearing in a woman of 46 years, which was first noticed at the age of 17 years, in the form of weakness of the limbs. Her brother suffered from paralysis, with atrophy of the upper and lower extremities, and her father died of paralysis which appears to have been combined with muscular atrophy. The special feature of the case was that the legs were completely paralyzed, with abolition of the reflexes and loss of sensibility as high as the knees. The author attributes these troubles, coincident with atrophy of the same parts, to limited multiple neuritis, while the muscular atrophy itself was generalized.

Hammond¹_{Apr. 23} presented the case of a boy with progressive muscular atrophy, probably syphilitic. Two years before, his fingers suddenly lost their power; in about five minutes he was able to use his fingers, but not the thumb, and from that time on the

paralysis progressed, first spreading to the other muscles of the hand, and gradually to those of the arms. Fibrillary twitchings became very marked, with hemiatrophy of the tongue, paralysis of one of the ocular muscles, and double vision. There was inco-ordination when standing with the eyes closed, and also loss of the knee-jerk on each side. The expression of the boy's face was rather characteristic of hereditary syphilis, and his father was then under treatment for syphilis, but there were no objective symptoms. Raymond, of Paris, ⁴²⁰_{Feb. 3} calls attention to several cases of muscular atrophy, progressive in nature, occurring in syphilitics.

Pershing ¹⁵¹_{Aug.} reports a case of single idiopathic muscular atrophy, beginning in the flexors of the hip, of which Buzzard ⁴⁷_{no} previously reported four cases, and the diagnosis of which can scarcely be made, except by exclusion. Erb ²_{May 13} reports the case of a carpenter, aged 26, who noticed commencing atrophy and weakness in the right shoulder and muscles of the arm, a few weeks after falling from a height of about three feet, while at work. After two years there was great wasting of the muscles of the arm and shoulder of each side; fibrillary tremor and R. D. absent; the whole of the right half of the body was hypalgesic and showed defective temperature sense; there was anosmia and dermatographia on that side. He concludes that the anæsthesia was of hysterical type, hysteria being associated with progressive muscular dystrophy.

Hammond, of New York, ¹_{Aug. 13} exhibited microscopical specimens and gave the pathological reports of two cases of progressive muscular atrophy, referring to the fact that considerable confusion was occasioned by misapplication of the term "peroneal type" to a disease totally dissimilar to the one under consideration. He concludes that progressive muscular atrophy is due to degeneration of the cells in the anterior gray masses and the antero-lateral white columns; also that it is superfluous to divide progressive muscular atrophy into different types, because the disease does not invariably begin in the same group of muscles.

Sudnick ¹⁰⁵⁰_{Nov., '92} reports a case of myopathy in a man of 21 years, beginning two years before. It was of the facio-scapulo-humeral type, but the author describes it as the progressive atrophy of infancy. The interesting feature is the temperature of the atrophied muscles. The author found that the peripheral temperature in myopathies of spinal origin is almost always below 30° C. (86° F.),

and when the electric excitability is diminished it is 28° C. (82° F.). In the case reported the biceps, which was completely atrophied, showed a temperature of 34.5° C. (94° F.).

Weiss,²² showed a singular case of atrophy of the right leg in a child 5 years old, probably consecutive to a fit six weeks after birth. The atrophy extended from the toes to the pelvis, the skin being cyanotic and having a sclerodermic appearance. Growth seemed to be altogether arrested, the right side of the pelvis being apparently aplasic. Development was also arrested in the right side of the cranium, but there was no paralysis of any part of the body. The femoral artery of the left side was larger than that of the right. This case seems to be one of active shrinkage from scleroderma, together with an active degeneration, which is unilateral.

“*Myoseismia*.”—Klippel and Durante,^{2,73} propose the name of “myoseismia” for the characteristic symptom of a form of generalized nervous disorder observed by them in the members of a certain family. . Of five members of one generation three (two brothers and a sister) suffered from the disease in various stages. Their mother and her sister died after presenting symptoms described as similar to those seen in the children. There are three periods of development of the disease: 1. Onset, at the age of 30 to 31, with gastralgia, cramps, and lancinating pains in the calves and loins. 2. Generalized myoseismia, which is not ataxia, but consists in repeated stops in the course of muscular contractions, by which the movement is rendered jerky; this jerky movement affects the ocular muscles, causing an irregularity which may be mistaken for nystagmus, renders the speech and writing jerky and the gait staggering. The patient is unable to maintain his equilibrium with the eyes shut. There is fibrillary chorea. The patient experiences pain on the sensory side, with cramps and anæsthesia of the extremities, especially of the legs. In addition to the above symptoms there is extreme debility, loss of muscular sense, amaurosis, and marked muscular tremors. No necropsy has been made. The authors suggest that the symptoms are probably due to a very diffuse lesion of the cerebro-spinal system, involving especially the white substance and possibly the nerve-roots.

Sacki,⁴ reports a case of neurotic progressive muscular atrophy similar to that of Hoffmann, and establishes the differential

diagnosis from Erb's muscular dystrophy, chronic anterior poliomyelitis, amyotrophic lateral sclerosis, spinal progressive muscular atrophy, syringomyelia, and chronic multiple neuritis.

Volkmann ¹³_{Aug. 18} has studied the regeneration of striated muscle in man and mammals, and finds that the nuclei of old striæ are always the point of origin for the formation of new fibres.

FRIEDREICH'S DISEASE.

Senator, ⁵⁵_{May 27} from his anatomo-pathological researches in this affection, rejects the current theory that it may be the expression of a combined systematic sclerosis of the cord. He showed preparations presenting the habitual zones of medullary sclerosis found in Friedreich's disease, and taken from patients who had had no symptoms of that disease. On the other hand, he showed a patient with all the signs of the affection, but who gave the impression, above all, of suffering from disease of the cerebellum. The hypothesis of a lesion of the cerebellum is such as to include all the symptoms of Friedreich's disease. This lesion would consist in arrest of development of the whole or a portion of the organ. Mengel and Nonne have published cases which would support this theory of Senator, who arrives at the following conclusions: Friedreich's disease, considered from its essential clinical features, depends upon congenital atrophy of the cerebellum, most often due to family predisposition, probably accompanied by a similar atrophy of the medulla, including the medulla oblongata. It is known that these congenital anomalies of development, especially of the nervous system, cause a predisposition to inflammatory or degenerative alterations. It is therefore probable, from the long duration of Friedreich's disease, that at a certain period it becomes complicated by secondary changes,—among others, of the medulla. These changes would account for the accidental symptoms met with more or less frequently in the course of the disease.

Ernest Auscher, of Paris, ⁴¹⁰_{Apr.} has published a case with autopsy and histological examination. From a clinical point of view, the case is interesting in that the onset, very late, was at the age of 25 years; and from an anatomo-pathological stand-point, the interest lies in the examination of the peripheral nerves, for the first time studied in Friedreich's disease. The calibre of the medulla was diminished; sclerosis was marked the whole length of the posterior

columns, slightly diminishing as it descended, being more marked in the columns of Goll than in those of Burdach. The posterior and anterior roots were smaller than in the normal state. The medullary lesions found corresponded exactly with those observed by Déjerine and Letulle, namely, a pure neuroglial sclerosis, without vascular lesions, and with integrity of columns of the pia mater. The fibres of the anterior roots were normal; in the posterior roots the large myelin-fibres were rare, the small ones more abundant than normal. The motor nerves were almost normal, there being but a few fibres undergoing degeneration, and but few without myelin. In the sensitive nerves, the fibres without myelin greatly outnumbered those containing myelin; and among the former myelin had begun to form, while the nuclei at the same time inclined toward the periphery. It seemed as if embryonic nervous fibres might be present. The contrast between the great alteration in the posterior columns and the slight implication of the posterior roots is worthy of note. As regards the lesions of the cerebellum, the author was not able to confirm the assertions of Senator, finding no lesions, and observing only that the organ was smaller than normal.

Lunz ⁶⁹_{Aug. 17} presented the case of a boy, aged 13 years, whose brother had also suffered from Friedreich's disease at the age of 4 years, the disease appearing in the patient himself when 2 years old. With the exception of nystagmus, the case was a clinical picture of the affection. This symptom was also absent in a case observed by Lop. ⁹²_{May 10}. The reflexes were not abolished, but merely diminished. The author regards the case as one of true Friedreich's disease, or at least of hereditary ataxia (the brother having the same affection?), appearing in an abortive form. Benthall, ²_{June} publishes one case, and Brock ⁶_{Jan. 21} and Tresidder ⁶_{Aug. 6}, each report three cases of the disease. Wallace Anderson ²¹³_{Sept.} states that the disease had been mistaken for chorea in two cases,—brother and sister. Sängers-Brown, of Chicago, ⁶¹_{Oct. 6, '92} has studied twenty-three cases, either personal or derived from literature, and divides them into two categories,—one in which heredity is manifest, and the other in which it does not exist. The first are the classical cases; the second show variations, the cause of which is as yet unknown, and which are diagnosed only by their analogy with hereditary ataxia. The author believes that the primitive lesion must be in the accessory

portion rather than in the essential nervous elements, and that there is a similarity between Friedreich's disease and disseminated sclerosis.

These opinions have not the value that they would have if they were based upon clinical analogy instead of pathological anatomy. Besides, the cases observed by Brown do not seem to have been all true cases of Friedreich's disease, and it may be that they were cases of hereditary ataxia.

John McCaw⁶_{Aug. 28} asks whether tuberculosis may not play some rôle in the development of the disease. In a case observed by him, no history of heredity could be obtained, though carefully sought for, but both of the parents were tuberculous.

Destrée⁸⁶⁸_{Nov. 5, '98} cites a classical case in support of the theory that the disease is one of evolution—an arrest of development. His patient was 21 years old, of degenerate heredity, childish, with numerous evidences of arrested development and cranial deformity. Besides the classical symptoms, strabismus and fulgurating pains were present,—rare phenomena, but previously observed.

MORVAN'S DISEASE.

As this affection becomes better known the clinical picture is enlarged, and now includes arthropathies, scoliosis, and contraction of the visual field among the symptoms. Baret²⁴⁸_{Jan.} publishes four cases very interesting in these respects. In the first there was complete absence of pain, with abolition of sensibility in various respects; the amyotrophy assumed the type of Vulpian, and the affection remained in the second stage. In the next case the disease had passed into the third stage, the lower limbs presenting spasmodic troubles, the amyotrophy being diffuse, with syringomyelic dissociation of sensibility and contraction of the visual field. The third case was abortive in form, amyotrophy, paralysis, anæsthesia, and fissures being absent, but multiple panaris with consecutive deformity being present, with trophic osseous troubles and contraction of the visual field. In the fourth case the disease assumed an hysterical form. Eisenlohr⁶⁹_{Jan. 22} reports a case occurring in a young man of 21 years. The symptoms were almost certainly due to syringomyelia of the cervical cord. The left triceps reflex was absent, the deep reflexes of the leg more

marked in the left, and the superficial reflexes on the right—favoring the idea of a cord-lesion.

The question of the relation of leprosy to Morvan's disease has rendered the diagnosis of the latter affection more complex, and there are cases in which it is almost impossible to pronounce between the two. Among these may be cited one by Debove, of Paris, ¹⁴_{Aug. 2} and another by Hogarth Pringle, of Edinburgh. ⁶⁸⁷_{July} Although the autopsies in cases of Morvan's disease by no means confirm the opinion that it is but a manifestation of leprosy, it is none the less true that the question is worthy of study and elucidation, as is also the relation of the disease with syringomyelia, also confounded with it.

ACROMEGALY.

Since the contribution of Marie, in 1886, to this singular affection, numerous cases have been related on all sides, confirming clearly the description first given by this author. Solomon Solis-Cohen ⁹_{Nov. 5, '92} reports a classical case. Beaven Rake ²_{Mar. 11} cites an interesting case, in a young negro of 10 years, proving that the disease is not confined to the white race. H. Weiss ⁵⁷_{Feb. 17} describes a typical example in a man 44 years of age. Ganse, of Frankfurt, ⁶⁹_{Oct. 4, '92} observed a case in a woman of 63 years, apropos of which he establishes the diagnosis between acromegaly and hypertrophic osteo-arthritis, giving a comparative table of the different measurements reported. In his case there was a combination of the two diseases, but the author considers it one of typical acromegaly.

Cases have also been reported by Dercum, ⁵_{Mar.} L. Day, ⁹⁹_{Apr. 30} J. Mackie Whyte, ⁶_{Mar. 26} Harris, ⁵⁷_{June 28} Allan Shiach, ⁶_{Aug. 12} Richard Caton, ¹⁸⁷_{July} Weiss, ¹⁰⁶⁹_{July} and Linsmayer, ⁵⁷_{Mar. 19} all of the classical type. Claus and Van der Stricht, of Ghent, ⁶⁸⁴_{Nov. 71} had an opportunity to study the anatomical pathology, and from post-mortem examination of the various organs found the following conditions: The lymphatic ganglia of the neck were profoundly altered, containing no more lymph-follicles; all varieties of white globules were present—with single nucleus, with polymorphous nucleus, and with multiple nuclei. The striated muscular tissue of the neck showed atrophy and sclerosis, the nuclei had budded abundantly, and the sarco-plasma had undergone vacuolar and granular fatty degeneration.

The hypertrophied pituitary gland was in process of necrosis, and liquefaction of its constituent parts had taken place; the portions escaping this destruction consisted of lymphoid tissue similar to that of the lymphatic ganglia of the neck. The thyroid gland was affected both by atrophy and glandular hypertrophy, as well as by hypertrophy of the connective tissue and lymphoid infiltration. The liver showed fatty degeneration and glandular atrophy, with slight lymphoid infiltration of the interlobular connective tissue. There was chronic interstitial and parenchymatous inflammation of the kidneys, hyperplasia of the splenic pulp and of the Malpighian follicles. The tongue was increased in size from hyperplasia of its connective structure. It is to be observed that the authors failed to examine the bones.

Lathuray, of Lyons, ²¹¹_{July 20} in a case of diabetic acromegaly, found the skull to be thick and heavy, with an occipito-frontal diameter of 66 centimetres; the pituitary body was softened and voluminous; the thymus persisted and the thyroid body was cretaceous. The kidney weighed 400 grammes (12½ ounces), and the liver 3 kilogrammes (6 pounds). Bonardi ⁵⁸⁹_{Aug. 24} also relates a case with autopsy, in a man of 74 years, in which there was no tumor of the hypophysis, but endarteritis with atrophy and sclerosis of the thyroid body.

Thomas, of Geneva, ¹⁹⁷_{June 20} reports an interesting case presenting several rare anomalies. The disease appeared at the age of 47 years, whereas ordinarily it manifests itself much earlier in life. Amenorrhœa, almost constant in the cases so far observed, was only transitory, and menstruation was normal, thus contradicting the genital theory of Freund. Examination of the blood was made in a case reported by Church and Hessert. ⁵⁹_{May 6} The amount of hæmoglobin was 95 per cent. of the normal, and an average of ninety-six countings with the hæmatocytometer showed seven million red corpuscles to the cubic millimetre. The proportion of white to red corpuscles was about 1 to 400. The authors believe the disease to be closely related to myxœdema and cretinism.

The pathogeny of the disease is still obscure. Haskovec, of Prague, ⁹²_{Mar. 10} in making a careful report of two new cases, seems disposed to attribute acromegaly to lesions of the thyroid gland, in view of the observation of such lesions in the disease, and from recent physiological work on the thyroid gland. It is certain that

the exaggerated growth is the result of an excitation which must be sought for. The two questions to be solved are: (1) the relation between the thyroid gland and the hypophysis; (2) the relation of the thyroid gland and the hypophysis with the nervous system. The relation between the thyroid gland and infectious and toxic diseases should also be studied.

Moncorvo, of Rio de Janeiro,¹¹⁸_{Dec., '92} has observed a rare case of acromegaly in an infant of 14 months, a girl who, besides microcephalus, presented the characteristic deformities of acromegaly (face, back, hands, and feet). Moncorvo believes the affection to have begun very soon after birth. Hitherto no case has been observed before the age of 19 years. The arrest of development in the brain due to the microcephalus renders the case more complex, and it is difficult to determine the rôle of the microcephalus in the pathogeny of the acromegaly.

Gessler,¹³³_{June 6} cites the case of a lady, 62 years of age, who at birth had a thickening of the right forearm, a supplementary finger between the third and fourth fingers of the right hand, and quite a large excrescence on the fourth finger of the left hand. These excrescences were removed at the age of 6 weeks. Menstruation occurred at the age of 18 and was always regular. When she was 28 years of age she suffered a contusion of the right elbow-joint, followed by complete ankylosis. Shortly after inflammation and ankylosis of the left elbow occurred; then the forearms and hands began to grow disproportionately, the thumbs and index fingers remaining normal; the left third and fifth fingers and the right third, fourth, and fifth fingers taking part in the growth. Until the year 1866 she was able to do her usual work and write very well. In that year amputation of the fifth finger of the left hand was performed, and from this moment the growth increased so much that it became necessary in 1892 to amputate the third finger of both hands. For nearly twenty years she suffered from respiratory troubles and disturbances of the liver and the stomach; chronic cephalopathia, insomnia, and headache in the left parietal; and for three years atrophy of the muscles of the shoulders and of the forearms, particularly those of extension. Sensibility remained intact in the forearms and hands. The sense of touch of the fourth finger of the right hand was diminished. In this case the symmetrical growth of both forearms and hands was probably favored

by the congenital condition at the 28th year, which, without any disturbance of the genital functions, resulted in joint troubles. There was slight hyperplasia of the thyroid without any disturbance of the thymus gland. Cephalopathia was a secondary phenomenon. The description of the case is contradictory to the picture given by Israel; non-congenital hypertrophy of the upper and lower extremities, and of the head, with constant hypertrophy of the cranium, tongue, lips, nose, forearms, hands, legs, and feet. In the case described by Gessler, the face and the lower extremities remained intact. (Report of Corr. Editor Morel, Ghent.)

Ostéo-arthropathie Hypertrophiante Pneumique.—Field, of Bedford, ²_{July}, reports the case of a boy, aged 17 months, whose heredity was good, and growth normal until the age of 6 months, when the mother remarked that the feet grew abnormally. At 8 months a severe bronchitis occurred, to which he had since been subject. From that time his feet and hands increased in size, as well as the ankles and knees. From the absence of hypertrophy of the nose and nails, it seems as if this were a case of the rare affection, *ostéo-arthropathie hypertrophiante pneumique*, distinguished by Pierre Marie, rather than of acromegaly.

Hemihypertrophy.—Tilanus, of Amsterdam, ⁸⁴_{Jan. 24}, observed a case of right hemihypertrophy, analogous to those already reported by Möbius and Demme, in a girl of 10 years. As in Demme's case, in which one hemisphere was larger than the other, the author attributes the trouble to a congenital defect in brain development. The difference in size of the members was from one to four and one-half centimetres, and the circumference of the right side of the head was one centimetre greater than the left.

There are cases of hypertrophy to which it is impossible to assign a place in nosography. Such is the case reported by Souques and Gasne, of Paris. ⁴⁵²_{Sept., Oct., '98} An hysterical patient of 23 years showed an exaggerated development of the hands and feet, accompanied by pain, paresis, and vasomotor dilator disturbances, analogous to the blue œdema described by Charcot in hysteria. The authors do not believe the case to be one of hysteria, however, after a differential diagnosis with acromegaly, hypertrophic osteo-arthropathy, erythromelalgia, and Raynaud's disease.

Dana ¹_{Aug. 19} reports two cases which resemble acromegaly, but

which, as observed by Dercum, Gray, Collins, and others, may not be real cases of the disease. The first was an Indian, exhibited as a giant, who had, in addition to symptoms of acromegaly, facial hemihypertrophy. At the autopsy the pituitary gland was found to be much hypertrophied. The second case was also that of a professional giant, seven feet five inches, who had only some symptoms of the disease. Dana thinks that acromegaly is sometimes associated with giant growth; most authors, on the contrary, believe the two conditions to be absolutely distinct.

PARAMYOCLONUS.

G. Lemoine, of Lille,⁹² publishes a new case of this rare affection, in a man of 41 years, without antecedent or personal history. The onset was sudden and preceded by violent emotion. Each attack commenced with fibrillary tremors of the muscles, a tetanic condition, and by contractions, extended, short and rapid, such as would be produced by the passage of a strong current. Fibrillary, tetanic, tonic, and clonic spasms succeeded each other in the course of the same attack. Two abnormal conditions were noted,—the inability of the will to arrest the muscular contractions, and the impossibility of executing important voluntary movements during their continuance. In addition, the mental condition of the patient was peculiar, approaching that of chorea, and he had a tendency to involuntary repetition of words and gestures, in this resembling tic. Lemoine believes that this case supports the theory that paramyoclonus belongs to the family of choreas, with electric chorea and tic, and that it is not in itself an entity, but rather of chance symptoms borrowed from other neurasthenic conditions.

Krafft-Ebing²⁸³ in reporting a case of myoclonus, expresses the opinion that paramyoclonus multiplex, electric chorea, and myoclonus should be ranked together under the name of myoclonus, but that they should be separated from hysteria and convulsive tic.

Tambroni and Pieracini¹⁰⁸⁹ ⁴⁵¹ showed a case of paramyoclonus multiplex, accompanied by progressive muscular atrophy, in a young idiot girl. Janchen⁵⁷ ²² observed a young soldier, aged 21, who often had a severe pain in the ankle or leg. When 17 years old he had great pain and swelling around the ankle-joint

after a forced march of ten hours. Since that time the pain had lingered in the leg and joint, increasing on movement or when standing. There was no flat-foot, sensibility, or abnormal limitation of the field of vision. A peculiar contraction of the muscles followed examination with a strong faradic current. Weiss³⁸⁰_{p. 117} observed several cases of myoclonus in the same family. He reviews fifty-one recorded cases, considering only thirteen of them as true cases of the disease. But the case reported by himself may, according to Möbius, be nothing more nor less than one of chronic, hereditary chorea.

ERYTHROMELALGIA.

C. Gerhardt⁶⁹_{p. 285, 72; No. 45} reports a case, in a needle-woman aged 44, who had suffered from neurasthenic symptoms for many years. The first signs of erythromelalgia—pain in the fingers and toes, vomiting, and headache—showed themselves suddenly at night. From this time on pain was constant. The hands and feet were red and swollen, and there was thickening of the end and middle phalanges, the left thumb alone escaping, though it, too, became involved later on. There was hyperalgesia of the swollen parts and the hands and feet readily perspired. The fingers were held in a flexed position, and any attempt to straighten them caused great pain. The urine contained a trace of albumen and some casts. The left pupil was narrower than the right. It is interesting to note that the patient was a needle-woman, as occupation is said to be an important factor in the disease. The author believes that erythromelalgia arises from a perineuritis, or even from a neuritis, and that the disease may assume three forms: (1) the angiospastic form of Nothnagel; (2) a form affecting the sensory nerves without external symptoms; (3) an angioparalytic form, regarded as the most common. (Report of Corr. Editor Morel, Ghent.)

Weiss⁵⁷_{Feb. 26; June 14}²² presented a young woman, from Benedikt's wards, who had been sent to the hospital on account of rheumatoid arthritis. For two months there had been great pain in both ankles, increased on pressure, more severe if the pressure was slight. The skin over both ankles was greatly reddened, while the perspiration from the feet alone was sufficient to saturate the bedclothes at night. There was no hysteria. The application of

Leiter's apparatus to the lower part of the spine caused relief of the pain and sweating. Later both hands became affected. Senator ⁴_{Nov. 22, '92} reports another case, in a postman aged 45, without neuropathic tendency or syphilis. The affection first showed itself in the left shoulder, and extended to the fingers. The patient could not touch even the smallest object. Later on there was also pain in the right shoulder and the arm of the same side; redness, first of the fingers, particularly the joints of the phalanges of the metacarpus, and later on of the feet. The suffering was so intense that the patient was obliged to abandon his post for eight weeks; he could not even bear the touch of his boots. On the right hand there were small nodules, which afterward disappeared; on the left hand similar nodules, of a warty character, also appeared. Other organs were normal, and there was no increase of temperature. The acute pains disappeared after some months. The abnormal excitability of the cutaneous vessels, even in parts of the body regarded as healthy, is noteworthy. This is a case of angioneurosis, a paralysis of the constrictors of the vessels, the opposite of Raynaud's disease,—*i.e.*, cramp of the dilators of the vessels. (Report of Corr. Editor Morel, Ghent.)

Machol ⁴_{Dec. 19, '92} observed erythromelalgia in a case of general paralysis, occurring eight weeks before death, and considers the brain disease as the cause of the erythromelalgia. Similar cases have previously been reported by Gebhardt, Senator, Bernhardt, and Henoch. (Report of Corr. Editor Morel, Ghent.)

ATHETOSIS.

Dimitri Michailowski ⁹⁸_{Oct., '92} ⁴⁵²_{May, June} reviews the subject of double athetosis, and adds several new cases of his own. This form of the disease has been the only one to occupy attention for some time past. Moussous, of Bordeaux, ¹⁸⁸_{Apr. '90} reports a classical case, the etiology of which is obscure, but which the author attributes to encephalitis in the second year, in spite of the almost complete integrity of the intellectual faculties. Lannois, of Lyons, ¹⁴_{Apr. '19} in discussing a case recorded by Audry, in which athetotic movements accompanied symptoms of Little's disease, concludes that double athetosis following birth or occurring in early infancy belongs to the group of infantile cerebral diplegias. The common feature of these affections is premature birth or difficult

labor, and the common lesion is arrested development of the pyramid.

Dawson⁹_{Oct. 22, '92} and Roque²¹¹_{June 18} have reported cases of double athetosis having no especial peculiarity. Combe¹⁹⁷_{Oct. '92} reports a very interesting case of left hemiathetosis, in a girl of 11, suffering from coxalgia, appearing suddenly without hemianæsthesia, hemiplegia, conjugate deviation of the eyes to the right, with movements of the left arm, partial motor or sensory epilepsy, occipital headache, vertigo, vomiting, sensations of falling. The diagnosis was cerebral tubercles, one in the mesocephalon, probably in the right striated body, and the other in the cerebellum. At the autopsy no meningitis was found; there was a tubercle the size of an almond in the right lenticular nucleus, the centre being slightly yellow, but not caseous; in the right cerebellar hemisphere there was a tubercle the size of a small apple, caseous in the centre; in the left lenticular nucleus, a non-caseous tubercle the size of a pea; in the left and right frontal lobes, two flattened tubercles the size of a dime, which had given rise to no symptoms, as was the case with that in the left lenticular nucleus. This case proves that athetosis is not due to irritation of the lenticular nucleus, but of the neighboring pyramid. It also confirms the opinion of Schiff that the striated body exercises no motor function.

RAYNAUD'S DISEASE.

Haig^{2075; 408}_{v. 22} publishes two cases of Raynaud's disease. In the first, a girl of 6 years, the attacks of asphyxia of the hands and feet were accompanied by hæmoglobinuria. The unusual features were the local asphyxia, due to spasm of certain vessels, and the paroxysmal hæmoglobinuria. The author regards the case as a proof of the theory that the increase of uric acid in the blood augments the arterial tension and contracts the arterioles. He believes also that the uric acid may destroy the red blood-corpuscles and produce hæmoglobinuria and consequent anæmia. Previous researches and urinalysis have led him to the conclusion that Raynaud's disease and hæmoglobinuria are dependent upon excess of uric acid in the blood, and his theory would explain their co-existence.

His second case was that of a man aged 47 years, with Bright's disease, chronic bronchitis, left ventricular hypertrophy, and some

insufficiency. Haig advises alkaline medication, and especially salicylate of soda.

Sänger showed a case of spontaneous gangrene which he considered of hysterical origin. Sherwell,²⁴⁵_{May} Skipton,⁶_{Jan. 21} d'Arcy Power,⁶_{July 20} Finch Noyes,²⁸⁵_{June 15} report interesting cases under various titles. Hutchinson⁸⁰⁶_{Apr.} calls attention to the inherited tendency sometimes observed, and cites a case. Christian Simpson⁸⁶_{May} considers the five groups of the disease as arranged by Raynaud, and gives an example of each. He insists upon the necessity of recognizing the true cause in order to institute a rational treatment. He also describes a remarkable case⁸⁰⁶_{Oct., '92} in which certain symptoms caused a resemblance to scleroderma.

Kornfeld⁵⁷_{Nov. 6, '92} would restrict the use of the term "symmetrical gangrene" to cases in which no etiological factor exists, and in which a trophic neurosis can reasonably be assumed as the sole cause. It cannot be applied to accidental symmetrical gangrene from cardiac, renal, or vascular lesions. For this reason a number of cases reported must be excluded. Stewart¹⁸⁷_{July} reports a case of gangrene of both feet due to frost-bite, in which amputation of one of the limbs became necessary. MacDonald¹⁰⁵_{June 1} relates a case of symmetrical gangrene of the extremities, in a child of 7 years, due to endarteritis and multiple phlebitis, proving, contrary to Raynaud's belief, that these conditions may be ranked among the causes of the disease. Mendel¹⁴_{Apr. 12} observed the occurrence of Raynaud's disease in a girl of 15 months, the symptoms appearing at the age of 9 months. The author adopts the theory of an obliterative or vegetative endarteritis, due probably, as Campbell Williams believes, to a specific microbe, which, however, has not yet been demonstrated. Guichard¹⁸⁸_{Mar. 10} reports a case of spontaneous gangrene of the left leg, in a child of 3 years, with threatened arrest of circulation in the right leg. The child died from convulsive and paralytic accidents, attributed by the author to meningeal hæmorrhage. He was not able to confirm this opinion by an autopsy.

Féré and Batigne⁹²⁷_{p. 259, '92},²_{Feb. 25} give the notes of a case of epilepsy in which paroxysmal local syncope had existed from birth. The patient, aged 19, had convulsions during infancy, and epileptic fits from his twelfth year. He was always highly emotional and timorous. The authors state that the coincidence of paroxysmal

vasomotor derangements with convulsive and emotional troubles in this case may, perhaps, support the angioneurotic theory of epilepsy and morbid emotional discharges.

Dehio ²¹_{Mar. 18} describes a case of symmetrical gangrene of the extremities consecutive to Raynaud's disease. Amputation of the necrotic finger-tips enabled the author to examine microscopically the living parts in the neighborhood of the gangrenous portions, and he obtained the following results: moderate inflammatory infiltration, but not attended with obliteration; endarteritis and endophlebitis of the vessels of the fingers, and degenerative atrophy of their nerves. Dehio, nevertheless, does not think that this should be regarded as arterio-sclerotic gangrene, because the disease began with characteristic vasomotor troubles, which do not occur in arterio-sclerotic gangrene. He believes that the latter affection began after the gangrene. He does not regard the gangrene as due to degenerative atrophy, for peripheral troubles in the nerve-trunk are always followed by a degenerative ascendant neuritis. He thinks it possible that in these cases there is a central origin, probably medullary. Weiss ⁸⁸_{v. 17, No. 46} does not believe that obliterative arteritis is the cause of obliteration of the vessels in gangrene from arterio-sclerosis. The gangrene is indirectly the result of sclerosis, the latter leading to thrombosis and then to obliteration.

MISCELLANEOUS.

Acroparæsthesia.—Under this name Laquer ⁵⁵_{Apr. 1} describes a new syndrome, which he has observed a dozen times in women from 35 to 50 years of age. It consists in attacks of numbness and stiffness of the hands and forearms, with sense of burning and tumefaction, extending to all the fingers and rarely limited to one side. The attacks usually come on at night, awakening the patients. The cause is often recognized in certain manual labor, or in the keeping of the hands in hot or cold water. There is no trace of anæsthesia, no painful points, no neuralgia, no diminution of muscular contractility; no electrical anomalies, trophic troubles, or vasomotor phenomena, except a sensation of cold. Hysteria or hypochondria was not observed in any of the twelve patients, and traumatism could not be considered as a cause. Electricity caused relief and sometimes cessation of the symptoms.

J. Collins, of New York, ¹⁹_{Sept. 14} proposes the following classifi-

cation of the paræsthetic neuroses, based upon the etiology: (1) the emotional type; (2) the mental; (3) the neurasthenic; (4) the toxic; (5) walking numbness (?); (6) the type which might be called "occupation paræsthesia," as it is often associated with a certain class of occupations. In the discussion Booth grouped all paræsthetic neuroses under neurasthenic, anæmic, lithæmic, and climacteric. Putnam-Jacobi said that the symptoms pointed to a nervous depression, and justified Gower's opinion that the fundamental cause of all paræsthesias was diminished resistance of the ganglionic cells. Seguin was inclined to attribute them to imperfect nutrition of the cerebral and spinal systems.

A Rare Neurosis of the Tongue and Buccal Cavity.—Bernhardt¹⁷_{Mar. 18} observed four cases (one man, three women) presenting the following symptoms: paroxysms of disagreeable itching and burning in the tongue, varying in intensity, disturbing sleep and often speech. These sensations nearly always existed on the left edge of the tongue, and in two cases in the mucous membrane of the lower part of the mouth, the cheeks, and both jaws. No change was observable in these parts with the naked eye, except in one case, where the skin of the tongue appeared to form folds. All of the patients were over 30 years old and of strong constitution. Two women had artificial teeth, but in the fourth case all the teeth were very healthy. In most of the cases formerly cited, the neurosis was a premonitory symptom, either of tabes or of dementia paralytica. In Bernhardt's cases it existed for many years without any complication. No objective physiological troubles (taste, movement, general sensation) were to be found in any of the four cases. The treatment was merely palliative; the best result was obtained by galvanization and faradization of the tongue and of the palate. Moral persuasion, in order to convince the patients that they were not suffering from cancer, also had a good influence. (Report of Corr. Editor Morel, Ghent.)

"Acromicria" of the Fingers of the Left Hand.—Lewin⁴_{Nov. 10, '92} observed a young girl with atrophy of the joint extremities, and he gives the disease the name of "acromicria." Only one other case, that of Stembo, is at present known, but this seems rather to be a case of sclerodactyly, as not only the fingers were shorter on one hand, but there was also atrophy of the muscles of the connective tissue, etc. Bernhardt, Remak, and Henoch do not believe

this to be a case of acromicria, since, in opposition to the condition in acromegaly, the parts should have become smaller and have retained the normal form. A part of a finger is missing, and, consequently, the case should be considered as a congenital arrest of development. Henoch justly remarks that this atrophy of the bones of the fingers must occur in early life, as a consequence of the well-known paralyzes of children; motor disturbances and impaired sensibility are sometimes also present. (Report of Corr. Editor Morel, Ghent.)

MENTAL DISEASES.

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GENERAL PATHOLOGY.

THE view that many mental disturbances are due to auto-intoxication is gaining ground among alienists. The scholarly paper of Kellogg, reviewed in the last ANNUAL, has found strong support in a report presented to the Congrès des médecins aliénistes de France et des pays de langue française, ¹⁴_{Aug. 6} by Régis, of Bordeaux, and Chevalier-Lavaure, of Aix. This report is briefly summarized in an editorial article, ¹⁹_{Sept. 14} from which the following conclusions are extracted: The toxicity of the urine was found to be diminished in maniacal states and augmented in melancholia. The urine of maniacal patients, when injected into animals, produces excitation and convulsions; that of melancholic patients, restlessness, dejection, and stupor. There is often in insanity, as in eclampsia, an inverse relation between the toxicity of the urine and that of the blood, the latter being hypotoxic when the urine is hypertoxic, and *vice versa*.

The authors consider the psychoses of acute infectious diseases, of visceral diseases, and of diathetic diseases:—

1. In respect to the psychoses of infectious diseases (typhoid fever, eruptive fevers, influenza, erysipelas, cholera, puerperal fever) the sum of researches thus far goes to show, first, that from a pathogenic point of view these mental disorders are the result either of direct action of microbes or of their indirect and mediate action by the toxins which they secrete; second, that from a clinical point of view they may present two aspects. In the febrile stage the psychosis is an acute delirium, resembling the alcoholic; in the post-febrile stage, it is of an asthenic character, a state of mental obnubilation and confusion. The authors think that a third form of infectious psychosis must be admitted, —a form intermediate between those above mentioned, with the

symptomatology of paralytic dementia, and which they call pseudo-general paralysis, or infectious general paralysis; and they ask, in this connection, if most cases of typical paralytic dementia may not be the consequence, more or less remote, of an infectious disease? However this may be, the characteristic symptom of infectious psychosis, in all its forms, seems to be intellectual disorder, mental confusion, without doubt the result of the impregnation or of the temporary inhibition of the cerebral cells by toxic agents. Generally the psychosis thus produced is susceptible of cure.

2. The visceral psychoses are also believed to be in great measure the consequence of auto-intoxication. Nevertheless, experimental researches have not been pushed far in this direction, and of what concerns particularly the psychoses resulting from digestive disturbances we yet know very little, having only certain imperfect data as to the concomitant alterations of the gastric chemism and the toxicity of the intestinal contents. We have more satisfactory data regarding hepatic and nephritic insanities, and it is clearly established to-day, by the researches of French and American authors, that these psychoses are, at their highest mark, the result of an autochthonous poisoning of the organism of an auto-intoxication. As for the clinical character of these visceral psychoses, it may be affirmed that, in cases where the intoxication is acute, the mental disease manifests itself habitually under the form of an acute toxic delirium like alcoholic delirium (this is the case in uræmic poisoning); when the intoxication is slow and chronic, the state is one resembling melancholia, or, more rarely, paralytic dementia.

3. The diathetic psychoses resemble acute toxic delirium, and in the intervals of attacks they frequently manifest themselves under the form of general paralysis or paroxysmal mania more or less periodical, and almost always of a melancholic character. The authors have also noted that these paroxysms of madness appear to correspond to variations in the composition of the liquids of the organism (hypoazoturia, hypophosphaturia, oxaluria, etc.), notably to discharges of uric acid,—frequent precursors of the end of the crisis,—and also to modifications in the urinary toxicity, which is found to be inferior to the normal.

Under the head of “Facts of Therapeutical Order,” Régis and Chevalier-Lavaure state that the antiseptic treatment, general

or local, often gives most excellent results. It is true that in the treatment of the psychoses of acute infectious diseases a tonic and supporting regimen is necessary to combat the state of exhaustion and inanition, the agents of infection being unknown; but in the visceral psychoses, linked to diseases of the stomach, liver, kidneys, etc., very good results have been obtained from the employment of purgatives, lavage of the stomach, and antiseptics. In the discussion, Gilbert Ballet, A. Voisin, Jules Voisin, J. Séglas, Legrain, Mabille, Briant, Cullerre, and Colin expressed opinions more or less in agreement with these views.

D'Abundo²⁴_{Feb. 12} has found the toxicity of blood-serum, in cases of mental disease, to be as follows: In paranoia it resembles most nearly the normal; in lypemania it is less toxic; in dementia it is always diminished; in general paresis it is increased, as also in acute mania. In epilepsy, imbecility, idiocy, and "moral insanity," the toxicity is normal or diminished.

Rummo and Bordini⁵⁰¹ have shown that the death of a rabbit is induced by the intra-venous injection of a cubic centimetre (15 minims) of serum from a healthy man per 100 grammes ($3\frac{1}{4}$ ounces) of the weight of the animal. The authors endeavored to see what action the serum of the insane would have in this respect, and found that the toxic action of this fluid augmented when the state of excitation existed, and diminished when the condition was one of depression, dementia, or idiocy. These results agree with those obtained by the repressive action of serum on the anthrax bacillus, which usually augments, while it diminishes in states of depression. (Report of Corr. Editor Morel, Ghent.)

Cristiani²⁴_{Feb. 12} has studied the relations of acetone, sugar, and albumen in the urine of insane patients suffering from diarrhoea due to degeneration of the solar plexus. In ordinary intestinal catarrh none of the above are present; but in diarrhoea due to degeneration of the solar plexus he found sometimes sugar, sometimes albumen, and sometimes both. This may in some cases aid in diagnosis. Brugia²⁴_{Feb. 12} has determined that the urine of melancholics is much more toxic than normal urine; that of maniacs is less toxic.

De Sarlo and Bernardini⁵⁰¹_{No. 3} report an interesting case in which they were able to conduct researches upon the cerebral circulation during psychical aberration. A peasant, aged 22, who had suf-

ferred a severe traumatism of the head, showed, after recovery, disappearance of a triangular portion of the cranial bone. The sides of this triangle, which were very nearly even, measured 2.5 centimetres. The posterior side about corresponded with the fissure of Rolando. The side facing inward was parallel with the sagittal suture and about one-half centimetre distant from it. At the age of 50, this peasant, having become epileptic and hemiplegic from the wound, was admitted into an insane asylum. The attacks were frequent, and were accompanied by hallucinations. The authors made sphygmographic experiments upon the denuded cerebral surface, also upon the peripheral arteries, at times when the psychic condition of the patient was exalted, partially by simple sensory impressions and partially by sensations of joy, fear, terror, anguish, anger, etc. These experiments showed that psychical functions of a reflex nature produced vascular changes, which were constant in the central nervous system in the form of vascular dilatation, but were not constant in the peripheral nervous system; so that, in cases of like nature, there were frequently noticeable differences, while, in different cases, the reactions were often similar. At all events, psychical activity is first particularly appreciable upon the vasomotor nerves; this does not, however, exclude the fact that frequently and in the most diverse conditions almost no vascular changes are induced, while, on the other hand, dilatation may occur. Consequently, an absolute antagonism between the cerebral and the peripheral circulation cannot be established or admitted, nor can the condition of the cerebral circulation be determined by the peripheral circulation. (Report of Corr. Editor Morel, Ghent.)

Francesco del Greco⁵⁰¹_{No. 3} has examined the arachnoid and the pia mater in a series of patients with general paralysis, pellagra, acute delirium, and other psychoses, particularly in the region of the central convolutions, where the meninges in general are first subject to alterations. In general paralysis he found the well-known vascular changes, and has even noticed them at the beginning of the disease, before there was any trace of sclerosis or atrophy of the cerebral substance. He considers the chronic hyperæmia of the encephalon and the consecutive changes as primary anatomo-pathological symptoms of paralytic insanity. In the pellagrous lunatic the pia mater presents diffuse opaque alterations,

a slight augmentation of the connective-tissue elements, and occasionally an infiltration of leucocytes, which are collected around the vessels or occur isolated in the meninges. In the other forms of insanity a slight thickening of the pia mater is usually noticed; the tortuous vessels have rigid walls, as in the case of very old people or in those dying of marasmus. The thickening of the pia mater usually begins at the level of the central convolutions. (Report of Corr. Editor Morel, Ghent.)

B. Pellizzi⁵⁰_{Aug. 7} has cultivated a streptococcus resembling that of erysipelas from the fluid contents of the swelling in five cases of othæmatoma of insane patients. The organism is also found in sections of the affected auricle. He regards it as an infectious disease.

An uncommonly great proportion of gall-stones was found in the bodies of insane patients by Snell and C. F. Beadles.²_{Aug. 12, 19} The former found gall-stones to be twice as frequent in the insane as they are stated to be in the sane.

THE RELATION BETWEEN INSANITY AND OTHER DISORDERS.

Ladislav Kohlberger⁵⁶⁹_{Nov. 25, 26} states that the source of mental diseases is not only in the brain itself, but in all the organs. For this reason no pathological changes are found in the brain in many mental diseases, and when, with time, they do appear, they are consecutive, but not primary. Hence mental disorders are deservedly classed as primary and secondary, although it is not always possible to determine their origin, nor to strictly distinguish whether we have to do with primary or secondary disease. At any rate, in examining and diagnosing the psychic condition of a man, we must closely and minutely examine the whole organism, and not omit any change in any organ, though seemingly insignificant, since experience teaches us that very serious changes in the function of the brain arise from insignificant changes either in the nerves or in other organs. This rule is not always closely followed, and physicians very often do not minutely examine the entire organism. For this reason, we have until to-day neither strictly scientific divisions of mental disorders nor exact indications for their proper treatment, diagnosis, and prognosis; we can rely only upon certain morbid symptoms. As regards prognosis, we have practically no sure basis. (Report of Corr. Editor Drzewiecki, Warsaw.)

Joseph Price, of Philadelphia, whose successful work gives him the right to speak with the highest authority upon all gynæcological questions, discusses the relations of sexual function and insanity. ¹⁹_{Feb. 4} He points out the frequency with which insane women suffer from disease of the sexual organs, and claims that relief can and should be given to the sufferers. Incidentally it will be found that restoration of the mind follows restoration of the physical health; but, quite independent of any idea of curing the mental condition, physical suffering should be relieved.

L. C. Gray, of New York, ²⁰⁰⁸ a skeptic in reference to the etiological connection of genital diseases in male and female with mental and nervous affections, claims (1) "that there is no proof that genital irritation in the male or female can cause nervous or mental disease, except in a predisposed individual; (2) that the proof is not yet absolute that genital irritation can produce nervous and mental disease even in a predisposed individual;" yet is willing to admit "that there is undoubted proof that the relief of genital disease in the male and female will often relieve certain nervous diseases, such as migraine, hysteria, epilepsy, simple nervousness, and hallucinatory insanity." Rohé ¹⁹_{July 16} reports further upon the relation of pelvic disease and insanity in women (see ANNUAL for 1893). Of 22 cases operated upon (21, removal of appendages; 1, trachelorrhaphy) 5 have been discharged recovered and 1 very much improved. Most of the other cases are much improved, but not sufficiently to justify discharge from the hospital. The author has also investigated the medico-legal relations of operations upon insane persons, and finds that in certain cases consent given by the patient may be valid; in others it is competent for the committee of the lunatic, or the court of equity, to give the consent for the patient. An extended opinion by an eminent lawyer is given, covering fully the various points raised in the recent discussions of the subject. W. P. Manton, of Detroit, ¹⁰⁰³_{June} has also studied the legal question in operations on the insane, and has arrived at similar conclusions. He ends his able paper with the following concise statement: "The conclusions to be drawn from the facts obtained appear to be that while the insane person has his legal rights in the matter of ordinary care and protection of person, as well as of property, the determination of what is best for his interests is vested in the guardian or parent, or relative acting in the capacity of

guardian. The surgeon, therefore, having the consent and co-operation of the guardian, parent, or relative, in his attempts to alleviate his insane patient from physical suffering, whether such attempts are followed by the mental restoration of the patient or in his death, provided the indications for operation are the same as would necessitate and justify surgical interference in the sane, would undoubtedly be sustained in his action by any court of law, as having proceeded in both a justifiable and proper manner."

Marie B. Werner, of Philadelphia, ¹⁹_{Dec. 31, '92} reports 30 cases examined in the Norristown Insane Hospital in which pelvic disease of some kind was found in all. In two of them, the appendages were removed; in one, complete recovery followed. Walter P. Manton, of Detroit, ¹⁰⁰³_{Jan.} makes a strong plea for the amelioration of the local disorders in insane women. He draws the following conclusions: "First. That insane women are capable of and do suffer from the same local disorders as the sane. Second. That, while mental alienation may mask or augment the ordinary symptoms of the disease in a few instances, the majority of insane women manifest their sufferings in the usual way, so that relief of such disorders is almost invariably followed by improvement in somatic and mental conditions." C. A. Kirkley, of Toledo, ⁶¹_{Nov. 5, '92} has examined the women in the Toledo Hospital for the Insane, and found masturbation practiced by 39 per cent. Curiously, the larger proportion of these masturbators was above 40 years of age. Nine cases are reported in whom gynæcological treatment of various sorts was instituted; in three of these, mental restoration followed.

C. A. Oliver, of Philadelphia, has made an elaborate study of the ocular reflexes in relation to the patellar-tendon reflex in general paresis. He gives the following summary of observations. It is to be regretted that numbers were not given instead of "in some cases," "in quite a number of cases," "in many cases," etc. 1. In some of the cases in the second stage of the disease, especially where the patellar-tendon reflexes were unequally exaggerated, there appeared to be an irregular and unequal spastic enervation of the two irides, causing irregularities in pin-point pupil forms. 2. In a few cases, especially in the third stage of the disorder, where the patellar-tendon reflexes were unequally diminished, the pupil size, though small, and its shape, though somewhat irregular, seemed to be but little acted upon by any

powerful mydriatic. 3. In many cases, especially in comparatively young subjects, in the third stage of the disease, where the patellar-tendon reflexes were unequally diminished, there appeared to be an unequal paralytic enervation of the two irides; the pupillary dilatation manifesting itself at times, though not as a rule, in the eye with the greater amount of objective optic-head degeneration and retinal change. 4. In a few cases, especially in men beyond middle life, in the third stage of the disorder, where the patellar reflexes were markedly diminished and where the ataxias were quite pronounced, there were marked temporary asymmetries of pupillary form, one often being quite small and irregular for several examinations, while its fellow was large and ovoid or oval. 5. In quite a number of cases, especially in the advanced stages of the disease (although seen in a number of cases in their earliest stages), where the patellar-tendon reflexes were unequally exaggerated or diminished, there was a failure of the irides to respond to even major degrees of light-stimulus, this being true not only for those subjects exhibiting a true spastic myosis, but more especially shown in those instances where, with partial dilatation of the pupil, mydriatics failed to act. 6. In many instances, especially in the older cases, where the patellar-tendon reflexes were, as a rule, unequally diminished, or even lost, there was not only failure of iris response to the strongest light-stimulus carefully thrown upon the retina, but, where obtainable, the irides seemed to fail to react to the various coarse and rough subjective and objective procedures necessary to be used in order to evolve both separated and associated efforts for accommodation and associated efforts for convergence. 7. In some instances, where ciliary muscle innervation could be satisfactorily obtained, both the spastic excitation and the paralytic enervation, at times found by subjective reading tests and objective study with the retinoscope, seemed to be in direct ratio with the patellar-tendon reflexes as the iridic changes. 8. In quite a number of cases where there was marked inequality of the pupils, with more or less want of reaction of the irides to light stimulus, the patellar-tendon reflex on the side of the larger pupil seemed to be the one the more greatly diminished. 9. In a number of instances, especially during the very earliest stages of the disease, where the patellar-tendon reflexes were beginning to lessen to unequal degrees, there often appeared momentary secondary ataxic

dilatation of the pupil during exposure to strong light stimulation. 10. In many cases, especially during the second stage of the disorder, when the patellar-tendon reflexes began to become irregular and inconstant, pupillary inequalities, as expressive of unequal iris innervation and action, became more and more constant.

Bjeljakow, of St. Petersburg, has studied the influence of disease of the ear in the causation and course of insanity. The conclusions are given by W. W. Ireland in an interesting abstract.¹⁶⁸ Out of 135 autopsies in insane patients 24 showed distinct inflammation of the middle ear. These patients suffered during life from the following clinical forms of mental disturbance: 1 had melancholia, 1 paranoia hallucinatoria acuta, 8 paranoia hallucinatoria chronica, 2 secondary dementia, 3 epileptic insanity, 4 general paralysis, 1 acute delirium, 1 senile dementia, and 3 hebephrenia.

Bondurant, of Tuscaloosa²⁴²_{Nov., '92}; Amelia Gilmore, of Philadelphia²⁴²_{Aug.}; Tuttle, of Somerville,²⁷⁸_{Apr., '92} and Norris, of Catonsville,²⁰⁰¹_{'92} continuing the researches of Christian and of Alice Bennett, have established the frequent relation of kidney disease and insanity. Bondurant's very extensive and thorough research comprises both the examination of the urine of all patients in the hospital at which he is a resident officer, and the careful microscopic study of the kidneys post-mortem. In a total of 1336 examinations he found albumen and casts present in 726, albumen alone in 259, casts alone in 157, and neither albumen nor casts in 194. Microscopic examination of the renal organs after death showed serious structural disease in approximately 3 out of every 4 examined.

P. J. Möbius⁸⁴_{Dec. 20, 27, '92} discusses the mental troubles of chorea, which he regards as an infectious disease. Like all other infectious diseases, its toxic principle may give rise to insanity with hallucinations, modified in form according to individual peculiarities. The onset of the insanity is, like all insanities of toxic origin, sudden, and its progress acute or subacute. Usually there is no parallelism between the choreic movements and the mental symptoms, but it is to be noted that, while chorea generally occurs in patients about 15 years of age, mental disturbance is generally found in choreic patients of 19 years of age. This is true of other diseases as well, the mental condition being seldom affected in childhood as compared with a more-developed age. On the same

principle general paralysis follows syphilis more frequently in patients whose brains are active than in those less intellectual. Möbius concludes that mental complications, while rarely occurring in chorea, are generally due to toxic infection, and are sometimes, in degenerate cases, associated with an hysterical condition. (Report of Corr. Editor Morel, Ghent.)

A. Joffroy ¹³_{Apr. 18} confirms this conclusion of Möbius, and reports the case of a woman of 26 years, with a history of heredity. When 11 years old, she had had typhoid fever, with acute delirium. When first seen by Joffroy she was suffering from chorea of three weeks' duration, with acute heart disease; she became delirious, with hallucinations of sight and hearing. Improvement took place in ten days, and recovery in one month. The author does not consider infection as a cause, but regards both the chorea and the mental trouble (hysteria) as symptoms of psychical degeneration; the former may occasionally be due to acute rheumatism, pneumonia, excitement, etc. The insanity is a manifestation of nervous degeneration produced by the chorea. (Report of Corr. Editor Morel, Ghent.)

The disorders of motion, feeling, and nutrition occurring during diabetes are well recognized, but mental disorders are scarcely known, French authors, principally, having written concerning them. Stanislaus Ierzykowski ⁷⁸³_{July, Aug.} cites three cases of diabetes complicated with mental disturbances. In the first case there was melancholic depression with suicidal ideas, lasting about a year and disappearing when the patient became very weak, toward the end of the disease; in the second case there was mental debility, which temporarily improved proportionately with the decrease of the quantity of sugar in the urine; in the third there was considerable pruritus vulvæ with general uneasiness. In all three cases there were no hereditary influences. He also quotes a previously-observed case of epilepsy, occurring suddenly, together with diabetes, at the sight of an epileptic fit, both the epilepsy and diabetes disappearing after one year's duration. The author also mentions one other case in which the quantity of sugar suddenly increased greatly under the influence of a disagreeable emotion. Mental disorders in diabetes generally take the form of intellectual depression or debility, the cause of their development not being known. (Report of Corr. Editor Drzewiecki, Warsaw.)

Camuset, of Bonneval, ²⁴_{Jan. 29} has observed the effect of an attack of cholera upon the mental state of the insane in sixteen cases. In maniacal cases the mental condition was improved, but relapsed on recovery from the choleraic attack. Melancholia was also improved during the attack, but not so generally or decidedly as states of exaltation. Fixed delusions and hallucinations were not affected. Vague or volatile delusions, however, disappeared. The author draws attention to this difference, and suggests that the latter symptoms are merely symptomatic of functional derangements of the brain,—alterations in circulation,—while fixed delusions are based on a persistent organic substratum or lesion.

Wassiljew ³⁶⁸_{No. 7} reports a case of post-choleraic insanity. In the society in which the case was reported, five other cases were added. The prominent symptoms were those of intellectual enfeeblement with hallucinations of hearing. Klinké ⁶⁸_{Nov., '92} reports fifteen cases of typhoid fever in insane persons, and finds that in a considerable proportion the febrile process was accompanied by temporary improvement in the mental condition. No permanent good effects were observed. Sara Welt, of New York, ¹_{Mar. 18} reports 3 interesting cases of mental disturbance following acute infectious diseases in children; 1 case followed diphtheria, 1 typhoid fever, and 1 scarlet fever. All 3 recovered. The experience of Kraepelin, Emminghaus, and others is quoted. In the large majority of cases recovery takes place, but in some a second attack of insanity follows later in life. This must be taken into account in the prognosis.

Canger ⁹⁹⁶_{Apr. 25} has made a comparative study of 200 sane and 200 insane men in reference to the development of the mammary gland, and finds that hypertrophy of this organ (gynæcomastia) is from seven to eight times more frequent in the insane. In 13 of the cases there was coincident atrophy of the genital organs, in 6 a feminine voice, and in 42 an underdevelopment of the pilous system. Rohé ⁶¹_{Sept. 2} records five cases of insanity during the lactational period. He points out that the disorder is usually the result of some physical disease. The indication of treatment is primarily the bodily condition, which can be ascertained only from a careful physical examination, and not from a study of the psychical manifestations. The treatment resolves itself into this: remove sources of irritation, correct aberrant functions, restore wasted strength.

H. M. Lash, of Indianapolis, ⁵⁶_{Aug.} writes upon the importance

of the early recognition of mental disease. He points out the great frequency of peripheral irritations as a cause of mental disturbances. His conclusions are summarized as follows: 1. Not all mental diseases are insanities, but many are rather mental perversions easily susceptible of cure if early recognized and handled and treated as are other physical diseases. 2. Insanity is a symptomatic condition, having back of it a physical pathological disturbance or lesion, which may be either in the brain itself or in some remote region. 3. The correcting of the disturbance or the controlling of the lesion, which is acting, directly or indirectly, as an exciting or stimulating cause, will alone, in a vast number of cases, dispel the gloom and clear up the darkened mental sky. 4. To the general practitioner the subject of mental disease is of the highest importance, for upon him rests the responsibility of that timely recognition of its presence and that prompt action in resisting its further progress that may save consequences so often far reaching and disastrous. 5. The meeting with troubles of this class of disorders can be no more avoided than can those of any other. The appeal for relief comes with far more touching emphasis, for without reason and judgment the man is as nothing.

C. B. Burr, of Pontiac,¹⁸⁵ discusses the obscurity and indefiniteness of the symptoms of acute and chronic inflammatory diseases in the insane. The reasons given for this departure from the typical symptomatology are (1) a relative anæsthesia of tissues, (2) the patient's sensations, his reflexes and his ability to describe his symptoms, which are all to a greater or less degree inhibited. Cases are related showing these peculiarities in an interesting manner.

GENERAL PARALYSIS OF THE INSANE.

J. Luys²⁴_{Feb. 26} analyzes 140 cases of general paresis, with reference to certain pathogenic conditions. The youngest of his patients was 27, the oldest 61 years; the average 43 years for males and 40 for females; 136 were males, 4 females; 55 were under middle height, 80 of middle height, and 5 were tall; 59 were single and 81 married. Of the married, 27 unions were sterile, and the remaining 53 had only 80 children, or less than half the normal proportion. The children of general paretics frequently show mental and physical defects. Among the 80 noted, there were 4 cases of idiocy and 10 of marked imbecility.

J. Wigglesworth,² adds two cases to those already reported occurring in youth,—one aged 12 and the other 14 years. Both cases were in girls. In the discussion on this paper, Clouston made the significant remark “that we may have general paralysis occurring not only at puberty, but also between 60 and 70 years of age.” According to Wigglesworth, the two most prominent etiological factors in precocious general paresis are heredity and congenital syphilis. E. Toulouse, of Saint-Yon,¹⁰⁰ gives a critical review of the reported cases of precocious or juvenile general paresis. Analyzing these cases (see ANNUAL for 1893), he describes the etiology, symptomatology, pathological anatomy, diagnosis, and treatment. Among the most prominent etiological factors are alcoholism in the parents,—seven out of seventeen cases. In two cases there was general paralysis in the father. The physical symptoms are the same as in the adult, but they are more pronounced and their sequence more rapid. The psychical symptoms consist of rapid loss of all intellectual power,—a complete dementia. The course of the disease is progressive, no intermissions occurring, as in many cases of general paresis in the adult.

The pathological anatomy does not differ essentially from that in the adult, the most marked feature being the extreme atrophy of the brain. The group of symptoms mentioned are sufficiently characteristic to permit a diagnosis of the affection. The convulsive attacks may raise a suspicion of epilepsy, but the rapid dementia, together with the bodily enfeeblement, will soon clear up the mistake. Consecutive dementia may be excluded by the preceding maniacal attack, which is absent in general paresis. The treatment is symptomatic; in predisposed individuals, preventive.

Frederick Peterson, of New York,¹ has carefully studied the temperature in general paresis, and reached the following conclusions: 1. As regarded the average bodily temperature, it corresponded with physiological norms. 2. The diurnal oscillations of temperature in paretics also corresponded to physiological norms. 3. Asymmetrical axillary differences were so small that they could not be considered as abnormal, and certainly not of any diagnostic significance. 4. When unusual variations of temperature occurred in general paretics, their cause must be sought for in conditions not related to the pathological phenomena of paralytic dementia, but depending upon other thermogenic features unrecog-

nized by the physician or "masked" by the mental state of the patient. Thus, in a case of his series, an increasing hyperpyrexia had been noted during the second week's observations; but the pneumonia causing it had been "masked" until the fifth or sixth day, and the patient had died on the sixth day. In another case, where the highest single daily oscillation had been 3.4° F. (2° C.) and the average daily oscillations for the week 2.2° F. ($1\frac{1}{8}^{\circ}$ C.), the patient had had bed-sores on the sacrum and heels and undoubtedly been somewhat septicæmic. That the temperature might vary in the paralytic seizures of these cases was not gainsaid, no observations having been taken in such conditions.

F. St. John Bullen¹⁶⁶_{Apr.} discusses the question of a variation of type in general paresis. The conclusions reached are not very definite, although he thinks that evidences of variation may be found in the following details: 1. Less pure and sthenic type of mania, with more infrequency of occurrence. 2. Greater frequency of primary demented cases, and an earlier onset of dementia in cases where emotional manifestations are primary. 3. Possible increased ratio of melancholic to maniacal symptoms. 4. Modification in the ages of patients attacked, in the duration of the disorder, and in its distribution as to sex. 5. Variation in the relative frequency in occurrence of convulsive and apoplectiform seizures, in a less sthenic character of the former, and in diminished frequency and fatal significance of them. 6. A possible concurrent change in the meningo-encephalic adhesions (post-mortem).

Ch. Vallon, of Villejuif,⁹⁴_{No. 74} reports a unique case of gangrene of the lower lip produced by prolonged suction and subsequent compression between the teeth. The case was one of advanced general paresis. The gangrenous portion sloughed off, leaving very slight deformity. The case is interesting as showing a rare form of self-inflicted injury in general paretics. At times, the occurrence of similar injuries might be made the basis of unjust charges against attendants.

Christian¹⁵²_{Apr. 21}; ¹⁰⁶⁹_{July} denies the statement that has been made, that general paralysis of the insane is accompanied by a rarefaction of the osseous tissue, leading to the ready production of fracture and retarding healing of bones, when broken. If this were the case, he says, fractures would be of frequent occurrence in general paralysis, whereas they are, in his experience, exceedingly rare. He has con-

stantly seventy or eighty paralytics in his hospital service, but is very seldom called upon to treat a case of fracture among them. In disproof of the second statement, that fractures are slow to heal in these subjects, he cites a case occurring in his service, in which perfect union of a broken arm took place within a month, the patient being a general paralytic, 40 years of age.

MELANCHOLIA.

Whitmore Steele, of Utica, N. Y., ²⁷⁸_{Apr.} gives the results of an examination of the blood in thirty-five cases of melancholia. There was found, almost uniformly, a diminution of the corpuscular elements as well as of hæmoglobin. Tonic treatment was found to produce improvement generally when the corpuscular and hæmoglobin percentage of the blood approached the normal. The author draws the following conclusions: 1. That in melancholia, both acute and chronic, there is a very marked deficiency in the number of hæmacytes, in very few cases the percentage even approaching to the normal, and that the percentage of hæmoglobin is reduced in like proportion. 2. That a number of cases, showing considerable crenation of the hæmacytes at first, are found to be much less crenated after tonic treatment and the mental improvement following it. 3. That systematic tonic treatment is found markedly efficacious in the treatment of this form of mental disorder. The administration of iron by itself or a combination of iron, quinine, and strychnine seems equally effective. It would appear, also, that although melancholia may not be caused by an impoverishment of the blood *per se*, such impoverishment almost invariably exists, and, in a large majority of cases, improvement of the mental symptoms is coincident with improvement in the general health and in the quality of the blood.

W. P. Spratling, of New York, ²⁸⁴_{Feb.} reports two cases of recurrent acute melancholia. He believes this form to be heretofore undescribed, and differentiates it clinically from periodic melancholia. The condition seems to bear some resemblance to circular insanity, with the difference that the stage of exaltation does not occur. Even repeated recurrences are not followed by mental enfeeblement.

During the past year the French journals have been filled with discussions of *délire des négations* and *syndrome Cotard*.

E. Régis, of Bordeaux ⁵⁵_{Feb. 11, 18}; E. Toulouse, of Saint-Yon ¹⁰⁰_{Mar. 16}; F. L. Arnaud, ³⁶¹_{Dec. '98} and A. Christiani, of Lucca, ⁶⁸_{Sept.} have treated the subject in its historical and clinical aspects. The delusions of negation in the sense of Cotard, first described by him in 1880, are always found in cases of anxious or agitated melancholia. The individuals usually have a psychopathic ancestry. The cases most frequently occur in women after the age of 50. One or two attacks of simple melancholia may precede the development of the delusions. These latter are delusions of non-existence of the patients' organs, limbs, body, their surroundings; the destruction of the whole world; they believe themselves damned; they insist that they cannot die or that they are already dead; there is often a tendency to suicide. The prognosis is unfavorable.

These cases are not altogether unfamiliar to American and English alienists, but are usually regarded as a variety of or a stage in the development of melancholia. It is doubtful whether any advantage would result from its consideration as a special type of delusional insanity.

MANIA.

An interesting case of acute delirious mania depending upon septic absorption is reported by F. Caruthers, of Catonsville. ²⁰⁰¹_{'98} The case was that of a man aged 39, in whom the beginning of the delirious mania was coincident with an abscess in the pelvic region. Evacuation of the abscess was followed by an amelioration of the mental symptoms, which, however, again recurred. After the death of the patient a large abscess-cavity was found anterior to the sacrum. It is supposed that the mental symptoms were dependent upon absorption of the pus or toxic products of the same. F. Peterson, of New York, ⁹⁹_{Oct. 9, '98} reports three cases of acute mania from inhaling carbon bisulphide. The cases were all in young men who worked in a rubber-factory. All three recovered.

PARANOIA.

An editorial ⁵⁹_{July '98} gives a brief, practical definition of paranoia, which may be quoted: "Paranoia may be considered a general term, covering those chronic insanities which are primary in origin and are characterized by a systemized delusion which dominates

the individual. The disease is a chronic one; it affects mainly the intellectual sphere; it is a disorder occurring in neuropathic individuals who have a bad heredity. It is, therefore, called a degenerative form of insanity. Often the individual has been somewhat queer or eccentric from childhood. Under the stress of competition when beginning his life-work the mind gives way, and he changes from a crank to an out-and-out monomaniac, or what we now call a paranoiac."

Kausch, of Strassburg, ¹⁸_{Mar. 18} reports a case of periodic paranoia. The patient, a woman aged 57, mother and one sister insane, had suffered from her sixteenth year with recurrent attacks of insanity. She has had from thirty to forty attacks. The first ten were simple melancholias lasting from six weeks to three months. Intervals entirely lucid. About the tenth attack the patient heard voices. Later, hallucinations of smell and common sensation and delusions of persecution were added. The case is reported with much detail.

IDIOCY.

C. Hammanberg ⁶⁷³_{July} attempts to establish a clinico-pathological classification of idiocy. In all the cases examined by him, representing the chief groups of idiocy, the author was able to explain the psychical defects by a deficiency in nerve-cells capable of performing their functions in the cerebral cortex, and to show that the brain-cortex had been checked in its development at a certain stage. If this interruption of development has taken place in the latter part of foetal life, and the greater part of the brain-cortex has not reached a higher development than the cortical substance in the normal brain, the patients have no trace of consciousness. Psychical development is impossible. To this class belongs the group called "naturals" by the author. If arrest has taken place during foetal life or the first year of life, and the greater part of the cortical substance of the cerebrum has not reached a higher development than is observed in the first years of life, the patients are not devoid of consciousness and conception, but psychical development remains as it is in the normal child in infancy. To this class belong the feeble-minded to a high degree. If development has been arrested during the first year of life, and but a small portion involved, while the greater part of the cortex is completely developed in every respect, except as to the number of cells, which

are less than normal, the psychical function is slower than normal, but the patient is not in the same mental condition as the normal infant. To this class belong the feeble-minded to a moderate degree. According to the territory of the brain in which development has been arrested, there arise disorders of motility or sensibility, and of the nerves. (Report of Corr. Editor Eklund, Stockholm.)

F. P. Norbury²⁰²¹₂₂ argues against the recently-proposed operations on the cranium for the improvement of the mental condition of the feeble-minded. The basis of his contention is that anatomical observations have failed to show that arrested brain-development is dependent upon premature synostosis. He claims that educational methods are superior to surgical in cases of idiocy.

HYSTERIA.

The literature of hysteria is again very full, although no novel contributions are made. The most notable papers are: the thesis of Bardel,⁴⁵²_{Nov., Dec., '92} on hysteria simulating organic brain disease in children; a study of the differential diagnosis between hysteria and organic brain affections, by F. Ghilarducci⁹⁴_{Nov., '92; Jan.}; and a clinical lecture by F. Schiffers, of Liège, on hysterical tomomania, or desire for unnecessary surgical operations.¹³⁶_{Dec. 1, '92} Cases of blue œdema are reported by J. C. Shaw and J. T. Duryea, of Brooklyn,¹⁵⁷_{Apr.} and Salvatore Bacci.⁴⁷²_{Mar.}

H. Babinski⁶⁷³_{Jan.} reports a number of cases in which hysteria was associated with organic diseases. The cases were organic spastic hemiplegia, diffuse meningo-encephalitis, traumatic facial paralysis, peripheral neuritis, neurasthenia, cystitis with purulent urine, cervical endometritis, organic coxalgia, scapulo-humeral periarthrititis. Other cases have been reported by numerous observers. Pontoppidan³⁷³_{p. 744} insists on the fact that at times it is very difficult to establish a correct diagnosis between hysteria and nervous symptoms caused by alterations of the nervous system, and mentions several cases. Especially interesting is that of a young lady who suffered from headache, pain in the sacral region radiating to the extremities, and from tonic and clonic spasms, the arms being contracted for hours. A diagnosis of cerebro-spinal meningitis was made, but after a few days the fever subsided and the case disclosed itself as one of hysteria. In another case

hysteria complicated cerebro-spinal meningitis and the hysterical symptoms continued after recovery from the infectious disease. (Report of Corr. Editor Levison, Copenhagen.) P. Joire, of Lille, ⁵⁵_{Oct. 15, '92} reports a case of imitative attacks of hepatic colic. The original case was a young woman who had frequent attacks of genuine hepatic colic, as demonstrated by the discovery of calculi in the dejections. In the imitative case, a brother of the first patient, of an hysterical disposition, the attack came on a week after a very violent attack in his sister.

Mossé, of Toulouse, ¹⁰⁶⁸_{Apr. 10} claims that anæsthesia of the fauces is not a pathognomonic symptom of hysteria, as generally assumed. This condition is present in many cases where there is no hysteria, while in others, undoubtedly hysterical, the sensation is normal. Comby ¹⁴_{Nov. 27, '92} reports a case of death following an hysterical convulsion. The accuracy of the diagnosis is, however, not beyond question. Debove ¹⁴_{Nov. 20, '92} reports a case of hysteria developing after removal of the diseased uterine appendages. In the discussion Desnos stated that he had observed two cases in which mental alienation had followed the same operation. Rendu stated that operations on the abdomen were not rarely followed by insanity, and cited a case of intestinal obstruction relieved by forming an artificial anus. Two or three days later insanity developed, from which the patient died. Judson Daland, of Philadelphia, ¹¹²_{Apr.} reports a case of hysteria in which the attacks were prevented by hypnotism. The patient was easily thrown into the hypnotic state, and both hypnotic and post-hypnotic suggestions were obeyed.

Jno. K. Mitchell ⁹⁹_{Aug. 24} has described a curious group of symptoms under the title "local catalepsy." The case was that of a girl of 17, of good family history and general health. In December, 1891, she several times dropped her school-books from the left hand as if it were tired and had suddenly grown weak. "In April, 1892, on the ulnar surface of the third, and on the adjacent side of the little finger of the left hand, there appeared sundry small blisters or blebs containing serum, which caused some itching and came and went several times. In July of the same year she received a slight cut with a knife at the root of the left thumb. There was a good deal of suppuration, and the wound healed slowly. All the fingers then gradually became stiff, and have so remained ever since." There was no muscular wasting of the

hand, but a curious cataleptic condition ensued. The hand was held "with the wrist half extended, all the fingers in semi-flexion, the little finger slightly abducted on the palmar surface of the third finger, the thumb in close contact with the palmar surface of the index finger, and all rigid." There was slight muscular tremor in the forearm and hand. Voluntary motion of the wrist was possible, but not of the fingers. Passive motion was easy at first, but soon became difficult and after a few movements the fingers would become quite rigid and remain for many minutes exactly as placed. There were occasional automatic changes in the position of the fingers. The sense of pain was lost in the whole left hand as high as the annular ligament, where it suddenly became acute again. Below this a slight pin-prick did not bleed; there was no sense of touch, localization, or temperature change. There was no tenderness over the nerve-tracks in the arm, with the single exception of a minute area of pressure-pain in the middle of the flexor surface of the wrist, just above the annular ligament. In every other way the patient was well and all the bodily functions normal. The rigid condition of the hand persisted during sound sleep. There was no evidence of any neuritis or degenerative nerve change. The author considered it of an hysterical nature, in spite of the absence of other manifestations.

HYPNOTISM.

De Sarlo and Bernardini⁵⁹¹_{v.18,p.1} obtained an opportunity of observing the cerebral circulation during hypnotic sleep. The patient, an epileptic aged 40 years, had an opening in the cranial vault, caused by a fall. The authors induced hypnosis by holding a brilliant object before his gaze. The patient, according as his eyes were kept closed or open in the hypnotic condition, was in a state of lethargy or catalepsy. They were unable to induce a somnambulistic condition. The patient was cognizant of what transpired before him while he was in the hypnotic state. While in this condition, sphygmographic experiments were made upon the exposed surface of the brain, with the following results: The cerebral circulation varied according to the hypnotic condition; in the lethargic stage there was hyperæmia and in the cataleptic stage anæmia. During hypnosis there is probably no antagonism between the cerebral and the peripheral circulation. In the hypnotic condition

the pulse was more frequent, and an almost total disappearance of respiratory irregularities was noticeable. Psychical activity regulated the vascular reaction, as in the normal state, except that this reaction was less plain, owing to the existing vascular constriction. As to the influence of hypnotism, the authors agree with Tamborini, that hypnotism only renders more marked the manifestation of the reflex hyperexcitability originally existing in the individual in a latent state. (Report of Corr. Editor Morel, Ghent.)

Krarup ³⁷³_{p. 77, '92}; ⁶⁷³_{Feb.} explains the occurrence of hypnosis by an alteration of the cerebral circulation. He believes that the portions of the brain whose functions are diminished during hypnotic sleep receive their blood from the internal carotid arteries, while the portions of the central nervous organs, which, during hypnotic sleep, are in a state of increased activity, are supplied by the vertebral arteries. In his opinion, the carotid arteries are contracted during hypnosis, and this is corroborated by the fact that the face is flushed at the same time, probably on account of a collateral fluxion to the external carotid arteries; the vertebral arteries are, on the contrary, dilated. By this supposition, all the symptoms manifested during the sleep by the eyes, lachrymal glands, masseter muscles, etc., can be explained. The hyperæmia of the cord and of the pons Varolii is, in his opinion, the cause of the cataleptic state of the muscles, which is more pronounced in the upper than in the lower extremities. (Report of Corr. Editor Levison, Copenhagen.)

Michaud, of Yokohama, ⁶⁷_{p. 22} gives an interesting account of hypnotism among the inhabitants of Annam. A large proportion of the Annamites are victims of the opium or morphine habits. There are also many hysterical subjects, the hysteria being the result of the use of the drugs. Hysteria is more frequent among the men than the women, especially among the classes whose occupation is intellectual, as the writers and interpreters. Hypnotic or suggestive methods of treatment are common. The people are suggestible and hypnotizable to a high degree.

The British Medical Association in 1890 appointed a committee to investigate the phenomena of hypnotism. The committee reported ¹⁶⁶_{Oct., '92} the following conclusions: "Among the mental phenomena are: altered consciousness; temporary limitation of will-power; increased receptivity of suggestion from without, sometimes

to the extent of producing passing delusions; illusions and hallucinations; an exalted condition of the attention, and post-hypnotic suggestions. Among the physical phenomena are: vascular changes (such as flushing of the face and altered pulse-rate), deepening of the respirations, increased frequency of deglutition, slight muscular tremors, inability to control suggested movements, altered muscular sense, anæsthesia, modified power of muscular contraction, catalepsy, and rigidity, often intense. It must, however, be understood that all these mental and physical phenomena are rarely present in any one case. The term "hypnotism" is somewhat misleading, inasmuch as sleep, as ordinarily understood, is not ordinarily present. As a therapeutic agent hypnotism is frequently effective in relieving pain, procuring sleep, and alleviating many functional ailments. As to its permanent efficacy in the treatment of drunkennes, the evidence is encouraging, but not conclusive. Dangers in the use of hypnotism may arise from want of knowledge, carelessness, or intentional abuse, or the too continuous repetition of suggestions in unsuitable cases. When used for therapeutic purposes, its employment should be confined to qualified medical men, and under no circumstances should female patients be hypnotized except in the presence of a relative or a person of their own sex."

G. M. Robertson, of Edinburgh, ¹⁶⁶_{Oct., '92} gives an interesting account of a visit to the clinics of Charcot, Bernheim, Voisin, and Luys, in order to study the phenomena of hypnotism as practiced at these different schools. He points out the differences in the views of the great leaders, and describes the methods pursued at the Salpêtrière, at Nancy, and at the Charité under Luys. He concludes that the phenomena are doubtless in the majority of cases real, and believes that when used for therapeutic purposes much good will result.

MISCELLANEOUS.

Political Insanity.—Krafft-Ebing ⁶_{Dec. 21, '92} has described under this term a form of mental aberration which in its developmental stages is not unfamiliar to the careful observer. Its terminal stages, as described by the distinguished alienist, are, however, generally overlooked. His graphic description is as follows: "In history and in our own time one comes upon large numbers of

people who, discontented with social arrangements, feel called upon to better the world. There are innumerable such pseudo-geniuses in society, both in the harmless province of important inventions and proposals for the public good, which prove, in the light of criticism, to be mere vain desires or Utopias. The clinical marks of these abnormally constituted persons are infinitely various. In many the mental endowment is weak and their intellectual productions bear the stamp of crazy eccentricity which clearly distinguishes them from those of genius. Many such remain all their lives in the stage of abnormal world-menders and pot-house politicians, but from the suggestions of others or the influence of excited times they are apt to lose the remnant of their discretion. Then they feel impelled to convert their ideas into action. They appear in the rôle of tribunes of the people, leaders of rebellions, founders of sects or political parties, and plunge themselves and others into misfortune." Farther on he says: "Such unfortunates fall at last into complete megalomania, and if they obtain power for a time they use it in accordance with their degenerate natures as tyrants. . . . If they are placed in lunatic asylums they regard their sequestration as actuated by envy and fear of their great talents, and go on cultivating their 'ideas,' awaiting the time of their realization. Their final fate is extreme megalomania, confusion, psychic debility."

Haphephobia.—Under this name (*haphe* = touch) Weill and Lannois²¹¹_{Oct. 16, '92} describe a case in which the prominent symptom was a dread of being touched. The case was that of a man of 58, who, for as long as he could remember, had had a dread of being touched, so that even pointing the finger or offering the hand to him would make him start. He has not only an exaggerated fear of foreseen contact, but also of those that may occur unexpectedly. Thus, once, when standing in front of a window, he was touched by a comrade in play, and he immediately jumped out of the window into the street. It is only the fear of contact to come; when his hand is seized he trembles for fear of further contact of his body or face, which he keeps as far off as he can, but he does not withdraw his hand. Examination of the cutaneous sensibility reveals neither hyperæsthesia nor spontaneous pains; he is not especially ticklish. He is perfectly conscious of his condition and knows that his dread is groundless, but he cannot resist it. From

infancy he has been considered ill-balanced, he is unreliable in work, and his intelligence is rather limited, though he can hardly be classed as weak-minded. His heredity is bad; his father was affected in the same way, and one brother was intemperate and became insane. It is necessary to distinguish haphophobia from the syndrome described under the name of *délire de toucher*, the emotional disturbance produced especially after contact.

Induced Insanity.—L. Bauer, of Besenfeld, ¹³³_{Dec. 5, 15, '92} reports a case of induced insanity, and discusses the etiology and classification of the affection. He divides it into three groups: 1. Identical or similar symptoms in blood-relations in which a similar defective brain constitution is inherited, although the individuals are not in close contact and do not influence each other; to this group belong the cases of true twin-insanity: here the cause is purely physical. 2. Cases of identical psychoses in blood-relations living in close contact and mutually influencing each other; etiology partly physical and partly psychical. 3. Identical psychoses in persons not related, but living in close contact: true induced insanity; etiology purely psychical. Prognostically, the last group is the most favorable. Isolation and proper environment of the imposed individual is often followed by recovery. Van Deventer ⁶⁸_{Apr.} reports three cases, with critical remarks on classification. A study of the same subject is given by E. Pronier, ²⁰²²_{'92} with a report of four cases. Dees ⁶⁸_{Jan.} reports an interesting case of probably induced melancholia in a woman, in whom the removal of a plug of hard cerumen from the ear was followed by rapid recovery.

Sexual Perversion.—P. Garnier ¹⁴_{Mar. 15} reports a curious case of sexual perversion. The patient had an uncontrollable desire to touch the silk clothing of women. Females not garbed in silk had no attraction for him. He had a short silk petticoat, which he wore at night on retiring. This garment gave him more pleasure than "*la plus jolie femme du monde*."

Senile Insanity.—F. P. Norbury, of Jacksonville, ¹¹⁴⁰_{Aug., '92} differentiates several forms of insanity in the aged. He claims that the term "senile dementia" covers diseases essentially different in nature and symptoms. In the ordinary senile dementia, the mental decline is gradual and progressive. Amnesia, changes of moods and emotions, the appearance of delusions, wakefulness, and the tendency to wander away are characteristic of this form. As con-

tradistinguished from this is chronic cerebral atrophy, characterized by despondency with suicidal tendencies, maniacal outbreaks, inhibited intellection, transient paralyses of speech, monoplegias, vertigo, etc. General paresis is also sometimes, though rarely, found after the age of 60.

Transitory Insanity.—Brauchli²¹⁴_{May 15} and Gadziatski²⁸_{Mar. 1} each report two cases of transitory insanity involving criminal acts. There was a sudden outbreak of violence lasting from two hours to two weeks. On recovery from the maniacal condition, there was no recollection of the violence attempted under its influence. The cases all remind one of epilepsy, although true epileptic attacks are denied in all.

Onychophagia.—Bérillon¹⁴_{July 22} has made a novel inquiry as to the frequency of one of the many bad habits of children, that of nail-biting, or, as he terms it, “onychophagia.” In primary schools, about one-fourth of all the children are nail-biters. In one of the communal schools of Paris, among 267 children from 8 to 12 years of age, 63 bit their nails. In a provincial primary school, 17 out of 50 had the habit. In still another, no less than 57 out of 187 pupils were nail-biters. Even in the higher girls’ schools the habit is prevalent. Bérillon finds that nail-biters are frequently subjects with other evidences of degenerescence. He has found the habit to yield to hypnotic suggestion.

Mental Dissolution.—G. H. Savage²²_{May} applies this term to the reduction “of the compound we call mind to some primitive elements by the stress of age and the storms of time.” In the course of the paper, which repays careful study, the most prominent symptoms of mental decay are sketched in an interesting manner. The stages of mental dissolution are generally shown by (1) defective power of acquisition, (2) defective power of co-ordination, and (3) defective powers of control. Each of these separate stages is illustrated by the citation of cases.

Educational.—The New York Commission in Lunacy issued a circular in November, 1892, to the managers of insane hospitals in that State, urging the managers to “afford to medical colleges situated in their vicinity, as well as to practicing physicians who may desire to avail themselves of the privilege, such facilities for the clinical study of mental diseases as, in the judgment of the medical superintendent, may be wise and proper.” This broad-

mind action on the part of the commission deserves the widest publicity. One could wish for other State lunacy commissions with similar ideals.

HYGIENE AND THERAPEUTICS OF THE INSANE.

Asylums.—The discussion of what has been termed the “hospital idea” in the treatment of the insane continues. The strong arguments of J. B. Chapin, of the Pennsylvania Hospital, have had a decided influence upon the thought of American alienists, although little actual progress has been made. Clouston,² has recently again called attention to the necessity of this reform. He claims the following advantages for detached hospitals for the sick and acute insane in connection with asylums: 1. That in these hospitals the diet could be made very varied, and the routine of the asylum dietary set aside; they had their own kitchens. 2. That the nursing is more special and more efficient, and the staff of nurses much more numerous. 3. There is the absence of asylum discipline and routine. 4. That as all the patients there are curable, or need individual nursing and care, it raises the medical and nursing standard for the whole asylum; so the doctors are, while in the hospital, medical men rather than administrators. 5. They form admirable training-schools for the new nursing staff,—a very important matter. All the new nursing staff at Morningside are sent there at least three months first, and so get the notion of nursing patients rather than the “keeper” idea. 6. The detachment of the buildings gives distinctiveness of use. They help the doctor to idealize his work to some extent. He advocates great variety of accommodation in each hospital, namely, dormitory day rooms, dormitories proper, day rooms proper, small three-bedded rooms, and single rooms, and that the hospital should have but one story. Matthew D. Field, of New York,¹ advocates detention hospitals for the insane. After speaking of the wrongs inflicted upon the insane by committing them to county jails and prisons, there to mingle with tramps while awaiting the appointing of physicians to pronounce upon their mental condition, he gave a description of the Reception Pavilion for the Insane at Bellevue Hospital, and the methods of examination and commitment by the city examiners. He declared the pavilion to be in every respect a hospital, with resident physicians and competent

trained attendants. Though a plain and inexpensive building, it served its purpose very well. He advocated the establishment of similar hospitals for the reception of those suspected of lunacy in all large cities. He said that an ideal institution for this purpose would be a hospital constructed on the pavilion plan for the reception of the insane, inebriate, and neurotic, with a small amphitheatre and sufficient wards for proper classification and detention for a reasonable time. A competent visiting resident and examining staff of medical officers should be chosen and clinical instruction regularly given. Such a hospital would secure prompt, humane, and scientific treatment. The opportunity for longer observation and securing histories and examinations would result in more complete and accurate certification. There being no need for hasty transfer to other institutions, the feeble, sick, and certain selected patients could be detained for treatment, and clinical instruction would be easily accessible to the entire medical profession.

Bothe, of Dalldorf,⁷⁴⁸ has studied the family system of care of the insane and draws the following conclusions: 1. Family care is to be regarded not as a makeshift, but as a necessary and valuable supplement to a public asylum as one of the other equivalent forms of care. 2. It cannot be introduced universally, but it can perhaps be applied to a larger number of public asylums than at present, always as an adjunct to them. 3. When extensively established it will relieve the asylums. 4. It is essential for the success of family care to bear in mind that the supervision of the patients and their boarding-places must be in charge of a physician. 5. The financial factor of a saving in the cost of support cannot be regarded as material, since the cost is only a little less than in the asylum. 6. When wisely introduced under not too unfavorable external conditions, the advantages of its establishment outweigh the defects so much that we are not justified in attacking its continuance on account of these defects.

H. Rayner, of London,² shows that the dispensary treatment of the insane is practicable within certain limits. In a number of cases under the care of the out-patient department of St. Thomas's Hospital cure was obtained by appropriate treatment, while in others prompt removal to an insane hospital was secured with beneficial results. He pleads for a more general adoption of the system.

Premature Discharge from Asylums.—Luys, of Paris,²⁴ discusses the danger of the premature discharge of suicidal patients from asylums. He reports four cases in which recovery from the attack was incomplete, but where the relatives and friends believed that they could safely remove the patient from the care of the institution. After a short time attempts at suicide were again made, which, in three of the cases, were successful. Luys strongly condemns these injudicious interferences of the friends of the patients with the proper medical treatment in institutions, and pleads for more reliance upon the judgment of the physician in charge.

Sulphate of Duboisine.—Belmondo⁵⁹¹ prefers duboisine to hyoscine in all cases of motor or psychical excitement. As an hypnotic, he frequently finds it superior to chloral; in acute cases (mania, etc.), it has a co-ordinative action, and seems to exert a favorable influence on the progress of the disease. The dose employed was from $\frac{1}{2}$ to $1\frac{1}{2}$ milligrammes ($\frac{1}{180}$ to $\frac{1}{60}$ grain). Larger doses are harmful and provoke vomiting and loss of strength. According to Giovanni,⁸¹⁹ it acts upon the heart in the same manner as atropine. It decreases the calibre of the peripheral vessels and increases that of the central arterio-venous system. Heart-lesions do not contra-indicate its use, since it but slightly diminishes the pressure. (Report of Corr. Editor Morel, Ghent.)

Mazzoochi and Automni² report good results from neutral sulphate of duboisine in various stages of mental exaltation. The dose used varied from $\frac{1}{2}$ to 2 milligrammes ($\frac{1}{180}$ to $\frac{1}{90}$ grain), hypodermatically, in twenty-four hours. No unfavorable effects were noticed. Sleep usually followed in twenty minutes and lasted about five hours. Tolerance was not established. When once the effective dose was learned in the individual case, the same effect always followed. In only one case was there absolute failure. Marandon de Montyel⁹⁴ has studied the sedative action of duboisine in 35 cases,—11 of general paresis, 10 of mania, and 14 of melancholia. The dose employed varied from 1 to 2 milligrammes ($\frac{1}{180}$ to $\frac{1}{90}$ grain) twice a day,—at 9 in the morning and 3 in the afternoon. The medicine was always given by the stomach. In about half of the cases of mania and melancholia and in three-fourths of the cases of general paresis, prompt and effective sedation was obtained. Unfortunately, when long continued, the drug has an unfavorable effect upon nutrition. Albertoni⁸⁰ has used

duboisine sulphate in various psychoses with generally good results. The dose varied from $\frac{1}{2}$ to 2 milligrammes ($\frac{1}{150}$ to $\frac{1}{32}$ grain). The smaller dose was usually employed. No unpleasant phenomena, such as vomiting, vertigo, or visual hallucinations, occurred; but, in nearly every instance, there were mydriasis, a sense of general weakness, and a diminution of the pulse-rate. Complete hypnosis followed in two-thirds of the cases in fifteen to twenty minutes, lasting from five to six hours. The drug does not lose its effect, tolerance not being easily established. Albertoni reports three cases of hystero-epilepsy cured by this drug.

Trional and *Tetronal* have been used to produce sleep and sedation in the insane by Pelanda and Cainer, of Verona⁵⁸⁹_{May 10}; S. Garnier, of Dijon,⁷³_{Dec. 2, '92} and Mabon, of Utica.²⁷⁸_{Apr.} The latter used trional in twenty-two cases and tetronal in fifteen. The conclusions deduced from this experience are as follow: These new remedies both have a marked hypnotic and sedative action, but trional appears to be the more serviceable as an hypnotic for the insane. On the other hand, small doses of tetronal appear to give the best results as a sedative. As a rule, the hypnosis which is produced is calm and quieting, and resembles very closely natural sleep. In a few instances unpleasant after-effects were noted, but they did not continue long and were not at any time alarming. They do not depress the heart's action.

In the majority of cases 15 grains (1 gramme) of trional given in hot milk at bed-time will produce sleep of from six to nine hours' duration, which is not accompanied by dreams. The time it takes to produce this effect is, in favorable cases, from fifteen to forty-five minutes, although it may be prolonged to over two hours. With tetronal it was found that generally 15 grains (1 gramme) were required to obtain the same results, and as this remedy is twice as expensive as trional the latter is to be preferred, as a rule. Both of these drugs have the effect with some patients of producing sleep for two nights after a single administration.

Their sedative action appeared to be most satisfactory, and with few exceptions did not produce a drowsy or stupid condition. The dose of trional as an hypnotic is from 10 to 30 grains (0.66 to 2 grammes), but it is advisable to begin with 15 grains (1 gramme). As a sedative 10 or 15 grains (0.66 or 1 gramme) at least are required, but in some patients even 45 grains (3 grammes) will not

produce any effect. The dose of tetronal as an hypnotic is from 5 to 30 grains (0.33 to 2 grammes), but in the majority of patients 15 grains (1 gramme) will be required to procure a satisfactory sleep. As a sedative 5 or 10 grains (0.33 or 0.66 gramme) given once or twice a day will generally prove to be of benefit.

Miscellaneous Drugs.—John Keay, of Edinburgh, ⁶_{Mar. 18} lauds *chlorobrom* as a safe and pleasant hypnotic in melancholia. It is given in doses of 1 ounce (31 grammes). It is said to be as efficient as paraldehyde, but not so disagreeable. F. P. Norbury, of Jacksonville, Ill., ¹¹⁴⁰_{Aug. 72} gives an excellent review of the indications for the use of sedatives in the treatment of insanity. The appropriate spheres of opium, of hyoscyamine, of hyoscine, and of cannabis Indica are briefly indicated. Marandon de Montyel ⁶⁷_{Apr. 30} has continued his observations on the therapeutics of mental diseases. (See ANNUAL for 1892, D-32). He gives *in extenso* his experience with *antipyrin* and *exalgin*. These remedies may influence favorably hallucinations and other sensory disturbances of reflex origin. In most cases, however, no effect is produced or the symptoms are aggravated. Exalgin, unlike antipyrin, in addition, depresses nutrition to a marked degree.

Vibrations.—The value of the vibratory treatment is discussed by Morselli, ⁸¹⁹_{Nov. 72}; ¹⁶⁹_{Mar.} who arrives at the following conclusions: The method seems to be useful in psychopathies with localized symptoms, and especially with neuralgias. Simple or passive melancholia, in the earlier stages, melancholia with intercostal neuralgia, seemed to improve more than other psychoses under the use of the tuning-fork, applied to the painful areas or to the forehead. A short period of rest was secured in case of hypochondria with occipital neuralgia. It was of no value in the sleeplessness of mental disease, but was effective in that of neurasthenia and hysteria. Its effects were transitory, and may be compared to those of suggestion. Its use is contra-indicated in all forms of mania, states of anxiety, and excitement and epileptic insanity. (Report of Corr. Editor Morel, Ghent.)

Injections of Nervous Substance.—Cullerre, of La Roche-sur-Yon, ⁵⁵_{Sept. 9} gives the results of his further study of the effects of the injection of nervous substance in the insane. In 16 out of 20 cases, good effects were obtained; in the remaining 4, no good results were noted. As in the fourteen cases previously reported (see

ANNUAL for 1893), the benefit was limited to the physical condition of the patients. No notable effects upon the mental condition were observed.

Inoculation of Toxins.—E. Goodall, of Wakefield,¹⁶⁶ remarking upon the beneficial effect often produced upon acute mental disturbance by local infective inflammation, suggests the use of inoculations of toxins produced by infective germs in the treatment of insanity. In view of the cases of mental derangement following the injection of tuberculin (see ANNUAL, 1892, ii, D-10), it would seem somewhat hazardous to try this method of treatment.

Pre-hypnotic Suggestion.—L. Stembo, of Vilna,²¹ reports several interesting cases in which good therapeutic results were obtained by pre-hypnotic suggestion after suggestion in the hypnotic state had failed. The desired effect is suggested before the patient is hypnotized; he is then put to sleep in the usual way, and on awakening the pre-hypnotic suggestion takes effect. The failure in some cases of hypnotic suggestion is attributed to the fact that during sleep the subject does not hear the suggestions, and therefore they fail. In other cases, the subjects are dominated by auto-suggestions antagonizing the suggestions given by the operator. The introduction of hypnotism as a therapeutic means, however, brings to mind the conclusions of Valentine, of New York,¹ at the late Pan-American Congress: 1. The therapeutic possibilities of hypnotism are not denied. A patient who persuades himself, or is persuaded, that he can be cured by the hypnotic influence, is as well or better cured than by drugs or appliances that do not appeal to his view of the case. 2. The hypnotic state should never be allowed a status in law or morals. While it is certainly better that a hundred rogues escape than that an innocent being be punished, there is no human mind conceivable that can be induced by hypnotic suggestion to do what its owner knows to be wrong. Those "moral defectives" who cannot distinguish right from wrong are proper subjects for the insane asylum.

If these propositions were established, hypnotism would, the author thought, have its status defined, and thus would be deprived of all power for evil. It must be clearly understood that no one could be hypnotized without his own full consent and co-operation; consequently, any violation of the law of the land, or even of an unwritten code of morals, while under the alleged "influence," was

as punishable as if committed in full, independent possession of the mental faculties. With this view everywhere accepted and established, hypnotism would no longer be a menace to the public weal.

A. B. Richardson, of Columbus, Ohio, in the discussion, stated that hypnotism was of some therapeutic value, but its indiscriminate use was dangerous to society. Public exhibitions of it were a crime against public policy, and its practice should be limited to physicians. G. M. Hammond, of New York, had found the most susceptible subjects among foreigners. He had discarded the use of hypnotism to a great extent, and had seen only occasional amelioration of symptoms effected by it, but no cure. Juan Padilla, of Guatemala, thought the writer of the paper had not sufficiently demonstrated the advantages offered by hypnotism, not only as a therapeutic agent, but also as a medium that might in certain judicial cases serve to bring out the truth.

INEBRIETY, MORPHINISM, AND KINDRED DISEASES.

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LONDON.

ALCOHOLIC INEBRIETY.

Two high French medical authorities, Brouardel and Pouchet,¹⁰⁷ in a report to a French hygienic government committee, declare that "the future belongs to abstemious nations." They are of opinion that in France alcoholism is now a social danger, undermining the bodily and mental health of posterity, and that from its injurious influence on the children and ulterior descendants of the habitual consumer, a degeneration of the whole nation is being induced. Formerly only the large centres of population were alcoholized; latterly, the evil has spread throughout the rural districts. The average *per capita* consumption, which was only 1.60 litres (quarts) in 1850, went up to 2.81 in 1870, and to 3.85 in 1885. Yet, while the production of alcohol was thus being increased, the production of grape and fruit alcohols was considerably decreased. In 1840 France produced over 800,000 hectolitres of fruit alcohols (wines, ciders, grape residues), 40,000 hectolitres molasses alcohols, 38,000 hectolitres grain alcohols, and 20,000 hectolitres beet alcohols. In 1885 fruit alcohols were reduced to 20,000 litres, while molasses alcohols rose to over 725,000, grain alcohols to nearly 600,000, and beet alcohols to 475,000 hectolitres. To-day, the latter class of alcohols, which amounted to a small proportion toward the middle of the present century, are swollen to more than 1,800,000 hectolitres, while grape and fruit alcohols have fallen from 815,000 to 22,000 hectolitres. The gravity of these figures lies in the greater toxicity of the heavier alcohols, which have supplanted ethylic alcohol. No wonder that alcoholic insanity in French asylums now contributes fully 15 per cent. of all cases, and in certain districts 23 per cent. Accidental deaths and suicides have increased correspondingly. Lardier, of Rambervillers,²¹² describes the children of drunken parents in

the Vosges as taught to drink brandy and other intoxicants from the age of 2 years. This is the first step in alcoholism. Who will save these children? Certainly not the parents. Society ought to step in for their protection. These children are morally abandoned, and the French Senate has proposed to the Chamber that such grossly-used children should be taken from under the power of their parents. At present, the necessary procedure is left in the hands of the French Temperance Society, which has not resources adequate for the task. Government ought to carry out this noble and arduous work. Jules Rochart, of Paris, ¹⁷_{Feb. 18} lays down that, though drunkenness has been a vice of all time, alcoholism appertains only to our epoch. This modern disease was born with the production of industrial alcohols, practically, only about half a century ago. The terrible progress of this scourge is proved by the fact that all the northern nations of Europe drink twice, thrice, or four times as much as the French, the annual consumption of alcohol ranging from 3.80 litres per head in France to 16.51 litres in Denmark. In England intemperance among women has spread with deplorable activity. The alcohols of industry are dangerous not only because they produce drunkards, but because they are poisons, the more hurtful as they are less-thoroughly rectified.

T. D. Crothers, of Hartford, ⁶¹_{Oct. 2, '92} computes that there are 1,600,000 excessive drinkers in the United States, in addition to the victims to morphine, chloral, and other narcotic drugs,—all centres of progressive degeneration and the most unsanitary physiological and psychical conditions. There are over a million unrecognized inebriates who are the most defective, dangerous, and degenerate of all classes. The superstition of personal freedom permits this army of inebriates to go on increasing the burden of their families and building up centres of physical and mental degeneration. Public sentiment should not permit one to become an inebriate, or tolerate him after that stage, unless under legal guardianship and restriction until he recovers.

The *résumé* of Italian crime from 1879 to 1890 by Bodio, head of the Government Statistical Department in Italy, shows a large increase in the amount of crime, mainly attributable to the alcoholism which of late years has become so prevalent. ⁶_{Aug. 12} The President of the Commission of Inquiries respecting the public

health in regard to the law on spirituous liquors has come to the same conclusion as Forel, of Zurich, as to a similar increase of alcoholic crime in Switzerland.

F. W. Campbell, of Montreal,⁷²⁸ states that, in his hospital practice, 70 per cent. directly, and from 10 to 15 per cent. indirectly, of his cases were caused by drinking. Augustine Planus, of Paris,⁷²⁸ records that from 1872 to 1887 57,932 persons were confined as insane in Paris, alcoholism being responsible in a great degree. But what was responsible for alcoholism? The principal cause, among other causes, was the war of 1870-71. During the siege, alcoholism obtained proportions hitherto unknown. During nine months at that time, Paris consumed five times as much wine and alcohol, notwithstanding the increased price, as its normal yearly consumption.

The attention of the medical profession and of the general public has been specially called to the alleged increase of inebriety among women, particularly in England. This important topic has been treated of in a mass of correspondence in the columns of a widely-circulated London daily journal. Prominence has also been given to it in medical journals, and I have already had occasion to call the attention of our readers to it. In a series of articles² the question has been moderately and dispassionately considered. Twenty years ago it was rare to see a woman drinking at the bar of a public-house in Britain. Now it is a common sight. At an inquest held recently in London, on the body of a woman who had died suddenly on the threshold of her home, after returning from a public-house where she had gone for liquor by 6 o'clock in the morning, I had occasion to testify that I had never seen so much female drunkenness before. Morning, noon, and night such houses had been thronged, largely by women; many with infants at the breast, who were treated to sips of rum or gin by the wretched mothers. On the streets were groups of from three to six women (many of them young), going about from public-house to public-house to expend in liquor all the money they could jointly provide for their weekly dissipation. The coroner, Danford Thomas, in confirming this evidence, said that he had lately held an increased number of inquests on intemperate females. In London, during 1891, there had been an increase of 500 apprehensions of females for drunkenness. In Glasgow² there were 10,500

women arrested for drunkenness and allied offenses in one year. Four thousand women were responsible for this long tale of convictions, no fewer than 450 of whom having been sent to jail for from six to thirty-four separate terms. Of some female inebriates in England and Ireland there had been hundreds of drunken commitments. Of criminals convicted over ten times (these are chiefly habitual drunkards) the women in England and Wales were, in 1884, three times as many as the men. In other ranks of life drunkenness (often secret among the cultured and the wealthy) has also markedly increased. In many other countries, though England surpasses all other lands in this shocking pre-eminence, there has also been a similar increase. T. D. Crothers, of Hartford, ²_{Dec. 11, '92} does not think that indulgence among women has progressed in America, but this is not in accord with my own experience. For one drunken woman in the United States whom I knew thirty years ago, I know at least twenty; and of later years women in some parts of America have broken fresh inebriating ground in the cultivation of inordinate consumption of strongly-spirituous preparations of ginger. Apart, however, from the mere number of drunken women, there can be little doubt that the proportion of intemperate females, who may fairly be regarded as diseased individuals, has largely grown. This is a more serious matter. The inhibitory power of such sufferers has been practically lost, and compulsory seclusion with appropriate treatment is essential to a cure in the majority of cases. T. D. Crothers, of Hartford, ²_{Dec. 31, '92} holds that the women charged in American police-courts with drunkenness and associated offenses are profoundly degenerate in body as well as in mind. The same may truly be said of only about one-sixth of the corresponding class of offenders in England, English women being, in the main, much more robust than their American sisters. Lawson Tait ²_{Oct. 15, '92} asserts that an intelligent and educated woman never becomes a drunkard but from some deep-rooted and often carefully-concealed cause. The indulgence may be from physical suffering or mental distress, but there is always a reason for it. Scores of his cases of suffering from inflammatory affections of the appendages have been cured of their drunkenness by the same proceedings as have cured their physical misery.

As showing the excellent effect of sobriety on health ²⁰²⁸_{July} states that, in the British army in India, the admissions into hospital

among non-abstainers are 10.5 per cent., as against 5 per cent. among abstainers. In the different arms of the service the proportions are as follow: In the royal artillery, 3.5 per cent. among non-abstainers and 5 per cent. among abstainers; in the cavalry, 4.9 per cent. and 1.7 per cent.; in the infantry, 8 2 per cent. and 1.9 per cent.

Pathology.—Nothing has been more satisfactory than the increasing recognition, during recent years, of the disease aspect of inebriety. Norman Kerr, of London, in his evidence before the English Departmental Committee on Inebriety, just published,²⁰²⁹ stated that, a quarter of a century ago, practically the whole religious and temperance worlds and nearly all the medical profession saw in drunkenness only the voluntary gratification of vicious desires, and denounced drunkards as willing and willful offenders against order and morality. Punishment was considered the best method of dealing with it, as it was regarded as a crime. Now, happily, all is changed. Clergymen, lawyers, and social reformers vie with police-magistrates in insisting on the diseased conditions of many inebriates, while Boards of Poor-Law Guardians pass resolutions calling for the treatment of the drunkard as a sick patient, not as a criminal transgressor. An evidence of this more-enlightened state of opinion has just been afforded by Henry O'Neill, of Belfast.^{723 Apr.} As typical police-court cases, he refers to the fining, at Belfast, on December 2, 1892, in the sum of 10s, for drunkenness, a woman, aged 55, who had been previously convicted ninety-two times. Next day a woman, aged 50, who was also fined 10s, had a previous record of one hundred and forty convictions. On December 8th a woman, aged 40, was fined 20s for drunkenness; she had been one hundred and seventy times before the court on a similar charge. Nearly all the highest penal records had been of women. O'Neill pertinently deduces that punishment is powerless, so far as reformation is concerned. Fines and imprisonment are alike failures. The conclusion is inevitable that drunkenness is a disease, not a crime.

L. D. Mason, of Brooklyn,^{157 Aug.} says that the large majority of inebriates become so from necessity, not from choice, there being a "*vis a tergo*" of heredity, environment, and disease that produces physical degeneracy and plunges them into drunkenness. T. L. Wright, of Bellefontaine,^{82 June 17} traces the pathological effect of alco-

hol on the body, on the nerves, on the blood, and on the physical integrity of important organs and tissues. By the action on the nerves there is loss of muscular power, with disorder of muscular co-ordination. Movements are imperfect, unfinished, out of proper relationship with each other. In the neurotic drunkard paralysis is not so quick in its appearance as in ordinary drunkenness. G. R. Wilson, of Edinburgh,²⁰⁸⁰ makes the assertion that drunkenness is the outcome of an ill-organized constitution. The permanent impairments of the nervous system in inebriety are described as phases of alcoholic dissolution,—a retrogressive pathological process. In the etiology of alcoholic nerve-degeneration there are two elements, viz., the effects of the direct pathological action of alcohol on the newer tissues, and of the impoverished blood-supply. These are chiefly the breaking down of the nerve-elements, with thickness and inelasticity of the blood-vessels and overgrowth of connective tissue. The gradual appearance and development of an appetite for excessive drink often indicate brain-degeneration.

Alcoholic Delirium.—Klippel, of Paris,¹⁴_{Aug.18} says that in all the forms of alcoholic delirium the same cerebral degenerations serve as a foundation upon which other lesions, in consonance with the form of the delirium, are developed. The constant lesions are derived from alcohol alone; the others are superadded and may vary with the case. In delirium tremens the lesions grafted on those preceding are meningeal hyperæmia or inflammation.

D. W. Cheever, of Harvard University,⁹⁹_{Mar.16} calls attention to the frequency of the supervention of delirium tremens days after accident, or an attack of sickness, as a result of the extra call on the nervous system. He strongly urges the paramount importance of procuring sleep, which is practically the cure, and objects to the mechanical restraint of the patient. Delirium tremens is also induced by tobacco and tea.

Geo. B. Twitchell, Cincinnati,⁹_{July 29} is of opinion that delirium tremens is a specific disease. He dismisses the old theory that the disease is due to the want of an accustomed stimulus, which is practically obsolete among the up-to-date members of the medical profession, since it received its death-blow some twenty years or more ago from Professor Laycock, of Edinburgh. But this exploded superstition still lingers in medical dark corners. Twitchell

objects to the theory that delirium tremens is a "toxic delirium,"^{2031 2d ed.} on the plea that no amount of alcohol will produce the condition in a healthy man or animal not accustomed to drink, adding that it is hard to think of alcohol as a cumulative poison. He favors the theory that the disease is due to alcoholic, gradually-produced changes in nerve-tissues, but more strongly supports the suggestion that the disease is due to retained products of metabolism. Fürstner found albuminuria in 40 per cent. of his cases, and kidney disease is alleged by some to be the cause. Twitchell does not positively adopt any of these theories of causation, but holds that delirium tremens cannot occur in subjects with healthy kidneys,—an opinion which I cannot indorse.

T. L. Wright, of Bellefontaine, Ohio,^{87 Apr.} in treating of the special influence of alcohol on the mind, says that in the subordinate degrees of alcoholic anæsthesia there is a corresponding imperfection in the perceptive functions. Drunkenness obscures knowledge also by the imperfect, unstable, and wavering attention leading to fragmentary observation, lacking in that comprehensiveness and unity essential to a truthful appreciation of facts. The faculty of attention worries and frets the neurotic, exacting exhausting labor. One of the chief inducements to alcoholic indulgence is the subversion of the elements of attention by the overthrow of ordinary sensibility. The mind, under the sway of alcoholic anæsthesia, is ignorant of its own infirmities, the toxic power of alcohol giving no sign, operating within the organism, of its impostures. Alcohol is often taken to secure repose. Alcohol impairs the completeness of the senses, as well as dulling them.

The heart-failure of chronic inebriates has for the past quarter of a century been continually presenting itself in my experience, often preceded by, or contemporaneous with, dilatation of the muscle. Alcohol has a direct action on the involuntary muscular system, and the heart is more responsive to its dilating action than any other part of the bodily structure. Sir B. W. Richardson demonstrated this effect of alcohol on the heart of a quadruped. Graham Steele, Manchester,^{90 Apr.} descanting on cases which he cites, says that the three cardinal symptoms of heart-failure are generally observed early in alcoholic cases, and that the prognosis is good, providing alcohol be abandoned as soon as the immediate therapeutic necessity for its use has ceased.

Treatment.—John E. Reid, of Cincinnati, ¹¹⁵_{Apr.} says that in inebriety with alcoholic affinity the disease begins with the first drink. Cases are either in the tippling or primary stage; the stage of habitual drunkenness, or second stage; or characterized by alcoholic organic disease and physical decline—the tertiary stage. The object of treatment is to correct bodily conditions that create affinity for stimulants and thus destroy appetite. The secondary object is to free the system of organic alcoholic disease, when such disease exists, and in all cases to produce complete restitution from strong drink by creating a positive physical and mental anti-drink state. Sir Dyce Duckworth, of London, ⁶_{Aug. 20} contends that the majority of the posterity of drunkards and of persons of an ill-balanced nervous system would do well to abstain altogether from alcohol, or, at least, before partaking of it, to consult a competent and experienced physician. T. S. Clouston, of Edinburgh, ⁷²³_{Feb.} holds that the taking of or abstaining from alcohol is not the simple question which many persons suppose it to be. Historical, social, physiological, ethical, and other considerations enter into it. Inhibition or control, which is both physical and mental, is one of the most important of the conditions of life and of nerve-working. Social life requires inhibition of individual desires in all forms and circumstances, to preserve the family and the race. The hereditarily healthiest and best brains have the greatest inhibitory power, inhibition being the highest of the brain's faculties. Keen cravings may arise in brains, but if the brains are perfect their power of inhibition will check these keen desires. There may be keen desires, intense cravings, with small inhibitory power, which is the typical condition produced by alcohol in certain brains. This is an entirely abnormal condition. The highest aim of education ought to be to increase this power. In small and single doses, alcohol acts almost exclusively on the brain and its blood-vessels; in large and repeated doses, the effects are generally nervous. The first effect of alcohol on inhibition is to paralyze the controlling nerves, so that the blood-centres are dilated and let more blood into the brain, which calls on the nerve-centres to do more work. In some brains, small doses give a general feeling of organic well-being; in others it, in all doses, confuses all mental operations. The inhibitory and the higher creative and initiative powers were, however, hardly ever stimulated. Even granting the stimulus of

alcohol in certain brains gave better work, the man who worked constantly under that stimulus must pay the undoubted penalty of reaction. Taking his whole life, he would be happier, do more work, and live longer, with only the natural brain-stimulus.

In the paper already referred to, Twitchell⁹_{July 20} advocates a free use of chloral to obtain sleep at once before the onset of the delirium,—a practice with which I do not agree, having found, as already recorded in this ANNUAL, the quieting of the nervous excitement and the induction of natural sleep, without narcotics, by the aid of free and frequently-repeated doses of liq. ammon. acetat., more satisfactory in every way, and leaving no injurious reactive after-effects. I cannot indorse the recommendation of shackles. Wherever possible to be secured, a padded room is by far the best resource; failing that, suitable good-tempered attendants. Lancereaux, of Paris,⁸⁷_{Feb. 16} holds that in alcoholic delirium the real chance of recovery lies in sleep. He isolates the alcoholic deliriate in a quiet, dark, and, if necessary, padded room, no physical restraint being employed. To procure sleep the patient receives 1 to 1½ drachms (4 to 6 grammes) of chloral hydrate, with ¼ grain (0.03 gramme) of hydrochlorate of morphine, in an infusion of limes. If sleep does not come on in about ten minutes, from ¼ to ⅓ grain (0.01 to 0.02 gramme) of morphine is injected hypodermatically. After the alcoholic disturbance has subsided, strychnine or nux vomica is given, followed by hydro-therapeutic measures. If there should be gastric complication, an antacid such as sodium bicarbonate is administered. The heroic doses of these narcotics, with the cardiac depression apt to follow their exhibition, call for deliberation in their administration to aged and infirm inebriates, and I prefer as an hypnotic, as stated above, a simple febrifuge frequently repeated. Sleep, thus quietly and safely induced, has proved much more curative than the sleep for which I formerly resorted to narcotics. Czarkowsky⁸¹⁴_{July} relates several cases of delirium and cerebral excitement, sometimes followed by loss of consciousness, in inebriates, after a full dose of caffeine. He has, therefore, come to the conclusion that the administration of caffeine is contra-indicated in alcoholism. In any event it should always be prescribed with caution, beginning with small doses, with instructions to discontinue the medicine on the appearance of the slightest agitation.

Peterson,⁶¹_{Apr. 16} in acute alcoholism, cuts off all alcohol and confines to bed, gives blue pill, followed by saline cathartic, hot wet-pack for insomnia, $\frac{1}{80}$ to $\frac{1}{82}$ grain (0.001 to 0.002 gramme) strychnine nitrate, and administers water, milk, kumyss, broths, soups, meat-juice, raw eggs, arrowroot, fruits, etc. When required, bromide and chloral or duboisine is ordered. In chronic alcoholism he withdraws alcohol, applies hot wet-pack, prescribes aperients and dyspatic remedies for alimentary disturbance, with a diet of milk, eggs, vegetable foods, and rarely meats. Strychnine injected, or by mouth with quinine, or in fl. ext. of cinchona ($\frac{1}{80}$ grain to 1 drachm—0.001 to 4 grammes), or in infusion of gentian. For permanent cure years of treatment are often required. Attention is called to my treatment⁶⁷³_{Oct. 72} of delirium tremens by liq. ammon. acetat. In the heart-failure of chronic inebriates, Graham Steele, of Manchester,⁸⁰_{Apr.} recommends rest in bed and granules of digitalin, 1 of these (gr. $\frac{1}{240}$ —0.00027 gramme) being usually ample.

E. C. Mann, of Brooklyn,²⁰²_{May 10} condemns the use of nostrums in therapeutics, and insists on the need in inebriety of seeing that the conditions of life are in the air the patients breathe and in the food they eat. Primary and secondary assimilation of nourishment must also be secured. He gives quinine, oxide of zinc, strychnine, and arsenic, with sedatives where needed. Vegetables and starchy diet are given sparingly. P. C. Remondino, of San Diego,⁷⁷_{Apr.} states that in Mexico, parts of California, New Mexico, and Arizona the natives treat excessive indulgence in mescal by the infusion of an herb called hediondia, which is said to engender a revulsion from the intoxicants previously indulged in. J. Bradford McConnell, of Montreal,¹_{June 3} narrates a number of cases of inebriety in which nitrate of strychnine, in doses of from $\frac{1}{80}$ to $\frac{1}{8}$ grain (0.002 to 0.01 gramme), twice daily, was administered for ten days, then once daily for ten days, with temporary benefit. In many of the cases there was a relapse, sooner or later, showing the need for prolonged seclusion, with the operation of moral and hygienic conditions. R. W. Felkin²⁸_{Mar.} reports success in four cases by the use of hypnotism.

Legislation.—By the withdrawal of the *privilège des bouilleurs de cru* the French government hope to restrict drunkenness. In Sweden, after a similar step, the distilleries decreased from 170,000 to 300, with a diminution in the consumption of liquor.

Formerly drunkenness in France,² existed principally in cities and large factory and commercial towns, the rural population being comparatively temperate. Now there is an alarming increase of intemperance in country towns and villages. From the atlas by Turquan, drawn up under the direction of Claude, reporter on the Commission of Enquiry of Consumption of Alcohol in France,²⁰³_{Mar. 15} the average consumption of alcohol in 1850 was 1 litre 60 centilitres for each person, which increased in 1870 to 2 litres 81 centilitres, and in 1885 to 3 litres 85 centilitres. The varieties as well as the quantities of strong liquors have increased. Less alcohol has been distilled from fruits, more from beet-root, molasses, and seeds, these latter being dangerously toxic. The Commission procured samples of alcoholic drinks from the most luxurious and most squalid wine-shops and restaurants in Paris. All the samples analyzed were returned labeled "bad," "dangerous," and were reported to have been imperfectly rectified.²_{Feb. 26} The liquors supplied in dining-rooms frequented by workmen were declared to be three-sixths impure, and containing aurylic acid. In haunts of ill-fame, among the noxious adulterants was methylene, though these beverages were not more so chemically than certain brandies sold at 7½d and 10d the glass in several first-class restaurants. Legislative measures have been urged to check the falsification of fermented drinks.

Batty Tuke,²_{June 10} proposes to vest the power of compulsory committal to a licensed retreat in a tribunal before which the alleged inebriate would have to appear. This proposal has been condemned by the *Lancet* and *British Medical Journal*. Norman Kerr, of London,²_{Aug. 6} to show the remarkable progress of public opinion in England on the propriety of exercising compulsion on inebriates to enter a retreat, states that three circulars had been issued to Boards of Poor-Law Guardians. In 1881 (to the first circular) 26 replies were received; in 1889 (to the third circular) there were 229, including many from the largest unions in the kingdom.

The Departmental Committee appointed by the British Home Secretary to inquire into the present modes of dealing with inebriates have issued a report with a valuable mass of evidence, all in favor of the compulsory therapeutic seclusion of inebriates. The committee recommends that compulsion be vested in duly-

constituted authorities, in the case of non-criminal drunkards, and that the maximum period of detention, in cases which have voluntarily applied for admission to retreats, should be extended to two years. It is also recommended that philanthropic homes for the treatment of voluntary applicants should be aided from the public funds, in order to provide for the poor. A new departure is suggested in criminal jurisprudence by the recommendation that inebriate criminals should be treated therapeutically in a reformatory institution, and not incarcerated in a prison.

Criminal Responsibility of Inebriates.—Motet and Vidal, of Paris,³³⁷ believe that pathological intoxication is only the blow of the whip, which favors the explosion of the phenomena of violent delirium. In habitual inebriates the stigmata of defective cerebral organization diminishes resistance to the intoxicating action, while favoring the development of intellectual and moral disturbance. In such ill-balanced individuals there ought not to be responsibility; but such cases are not always clear or accepted, and the physician has to meet the alternatives of favoring an alcoholized person, who may soon compromise social security, or of punishing him too severely. The affirmation of irresponsibility should involve prolonged commitment to an insane asylum. Violent delirium which may develop criminal acts may, in some inebriates, supervene after a few excesses; in others much later, after years of excess. The toxic agent modifies the intimate constitution of the nerve-cell, and creates a special susceptibility under the influence of any excitement. Almost all authors agree as to the absence of culpability in the person who commits a reprehensible act in a state of alcoholic madness. In crimes done during an attack of delirium tremens, the evolution contemporaneous with the culpable act is sometimes so rapid that the doer has recovered freedom of mind. The expert must then study the antecedents. A man may drink considerable quantities every day without appearing intoxicated, but he may, nevertheless, be in a permanent state of alcoholic intoxication, and under the influence of any cause whatever, a paroxysm of delirium may break out. He joins in a fight, doing and receiving injury. He is a blind agent. He is not punishable. He has obeyed a morbid impulse, which he was powerless to resist; or he may be a regular drinker, drinking freely, yet not to drunkenness. Let him have a serious fall, a violent blow, or acute illness, and suddenly

alcoholic delirium may break out. An offense or crime committed at this moment cannot be imputed to him. Clark Bell, of New York,²¹⁰ says that insanity is now demonstrated to be a disease of the brain, of which it is itself an outward manifestation. Inebriety is also shown to be a disease of the brain, manifesting itself through brain indications, which demonstrate it to be a form of insanity wholly dominating the volition, and beyond the power of the victim to control. The framers of the New York Penal Code have engrafted a provision that enables a jury to pass on the motive and intention of the unconscious and wholly-insensible inebriate, so that by law a conviction would now be well-nigh impossible in New York. T. L. Wright³³⁷ writing on the accepted legal test of responsibility, whether the inebriate committer of a crime could distinguish between right and wrong, or know that the act was wrong, says that the power of discrimination between the fine shades of the moral qualities must be weakened when consciousness is defective, and it must be defective in every grade of anæsthesia. The knowledge of right and wrong may exist without the power of discriminating the two. The law recognizes that the man drunk is insane. The law claims that the drunken man is a "voluntary" madman. This is a contradiction in terms. There is something beyond the bounds of rational conception in the idea of voluntary insanity. Such a use of will would be the act of a mind already insane. The effect of alcohol is so modified by special nervous susceptibilities and peculiarities that it is the right of every individual guilty of inebriate crime to have his trial made a special one. He is entitled to a full inquiry respecting the facts that pertain to himself alone. T. D. Crothers, of Hartford,³³⁷ says that alcohol, used either in moderation or excess, always deranges sensation and the brain-centres, which receive and determine the value of the impressions. False impressions come from the senses and the brain is unable to correct them. Associated with this is the delusion of mental health, and clear, accurate judgment of his condition and surroundings. This condition is present in every drinking man, only different in degree. These defects are the essential factors of criminality. Criminal acts come from inability to understand the relation of surroundings, and to adjust the conduct to the varying conditions of life. The criminal acts of the inebriate spring from this confusion of senses and judgment. This

shows the irresponsibility of inebriates. With reference to the memory of inebriates, Crothers says ³⁸⁷ that alterations and decadence of memory are frequent symptoms of inebriety. In some cases recent events are first lost, then intellectual acquirements, then impressions belonging to the domain of the feelings, and, finally, the ability to perform automatic acts. This depends on some unknown modification of cells in the cortex and centres, which may be transient or permanent. In a recent trial for murder, the accused, an inebriate, had for years a progressive loss of memory, yet he had performed a certain routine work without suspicion of brain incompetence. This memory failure was not considered evidence of inability to comprehend the nature and consequence of his acts. Further study revealed dementia and delusions, yet the man was hung.

Treating of the bearing of inebriety on civil law, Norman Kerr ²⁰⁸¹ stated that, at meetings of creditors, acting on his advice, legal advisers have refrained from calling as witnesses persons whose brains had been so affected by intoxicants as to dim the perception of truth and render their evidence valueless. In Quebec and New Brunswick the interdicted inebriate lost his civil rights. New York State law deprived the inebriate of the management of his property. In testamentary disposition a question arose concerning incapacity due to inebriety. Recent cases cited showed legal recognition of a diseased inebriate state. To invalidate contracts, the incapacity from intoxication must be complete. In America defendant's partial intoxication did not void a contract unless the plaintiff purposely caused the intoxication; but total drunkenness voided any contract. In Dutch law, a contract entered into in a tavern was not valid unless ratified within twenty-four hours. In a recent Scotch case, Lord Wellwood held that it was not necessary to prove total insensibility. The presumption in attesting was in favor of validity. A man might be moderately drunk, yet legally capable. Medically, a man might be outwardly capable, yet incapacitated, as in inebriate trance. Wills might be proved invalid if executed when the person was intoxicated. It had been ruled that incapacity to know the nature and consequences of the act of marriage might render the contract voidable. On the relation of inebriety to criminal responsibility, he pointed out that, while Roman law (at least, as regards soldiers) made an

allowance for drunkenness, Grecian law did not. In Mitylene there was a double punishment for offenses committed in a state of intoxication.

The New York Penal Code allows drunkenness to be considered as to a criminal intent. In German, Austrian, Swiss, Italian, and Dutch law, there is a distinction between culpable and inculpable intoxication. English laws generally exact complete responsibility. In Austria, a peasant farmer, while intoxicated, killed his brother. In Britain he would have been hung, or, at least, have received a very long term of imprisonment. Under the Austrian Code provision of a reduction of punishment in the non-intent of intoxication, he served nine months' imprisonment, became a changed man, and headed a temperance reformation in his district, where a monument has been erected to commemorate his great services to his country. Some authorities, with Coke, hold that drunkenness aggravates the offense; others, with Hale, that the punishment should be equal. But there has, for some time past, been a gradual judicial development of, in certain cases, a diseased brain condition short of insanity, which causes irresponsibility. Recent cases recognized a diseased inebriate cerebral state. In severe trials, a plea of delirium tremens has secured an acquittal. Diseased inebriate offenders should be treated for their disease, and many of them would be cured.

J. R. McIlraith, of London,²⁰³² says that by existing British law habitual drunkenness, as such, forms no defense, either in civil or criminal cases, except in so far as it may be admissible as evidence with a view to prove facts which can be construed as establishing legal incapacity or insanity. Though this is true, there have been recent trials²⁰³¹ in which certain diseased inebriate mental states, short of what is generally regarded legally as insanity, have exempted from responsibility. This recognition of such abnormal mind conditions as a legal answer has, however, had to be entered as a plea of insanity and not inebriety. It is greatly to be desired, in the interests alike of equity and justice, that certain abnormal, inebriate, disordered mental states should be accepted as a valid plea altogether from the stand-point of insanity. The alternative would be the classification of such pathological states of mind as a variety of mental unsoundness, as in Belgian law. The former method of a distinct, independent, legal recognition is, however,

preferable, if for no other reason than that the inebriate should not be associated in treatment with the insane. I believe that the former course will ere long be followed by the jurists of all civilized communities. McIlraith further declares that the Inebriates' Acts of 1879 and 1888 have taken an important step forward in recognizing habitual drunkenness as a state of being which is hurtful to the community at large. By so doing the law has taken cognizance of the state, and henceforth lawyers cannot plead ignorance of the subject. What is wanted now is to have legal principles and ideas so modified as to incorporate the advanced state of thought recognized by the Inebriates' Acts into the law generally; and, with the necessary limitations, to raise a presumption in the case of habitual drunkards of that incapacity for legal acts and responsibilities which undoubtedly almost invariably accompanies that state of disease.

Insurance Relations of Inebriety.—Norman Kerr, of London,⁶ points out that, under the usual provision in accident insurance policies, of intoxication invalidating a claim for death, two legal points are involved: one, the establishment of the allegation of drunkenness at the time; the other, proof that the accident was the true cause of death. On the former point cases cited showed a remarkable conflict of evidence. It was not necessary that the assured should have been under the influence of liquor at the time of death. Some offices would not insure publicans; other offices took them at a considerably enhanced premium, varying from 5 to 10 per cent. In one case of alleged death by accident, the company was successful on the showing that the man died from syncope following the rupture of a large vein induced by alcoholic "rottenness" of the tissues and vessels, though a coroner's jury had returned a verdict of accidental death. In life-assurances, cases were cited to prove that concealment of intemperance and of delirium tremens was fatal to the claims. In one case concealment of a secondary effect of intoxication established resistance; in another no report as to habits was fatal. However, in some cases where there was a mass of evidence indicating intemperance, the verdict was against the company. The author contrasted the opposing testimony of witnesses for the prosecution and the defense in various trials, holding that there was intemperance which killed but did not make manifestly drunk. More than a half of inebriate

artisans and at least one-third of inebriates in the wealthier and more-educated classes were insured. Two classes of inebriates were assured, the inebriate before and the inebriate after insuring. The latter generally became drunkards unknowingly and gradually. The loss from both classes was very heavy. Concealment was not always designed. The loss was now borne by policyholders, which was unfair to abstaining lives. To meet this difficulty some offices charged a lower premium to abstainers. Some diseased inebriates were limited drinkers. There was no recognized standard or definition of intemperance. The initial alcoholic lesion was difficult to detect. As inebriety ages prematurely, a good plan would be to age the policies of drinkers. Many offices declined to accept lives of reclaimed inebriates; Kerr approved of acceptance after a minimum probationary abstinent period of five years, in cases of five years' standing, with half a year added for every additional year's indulgence. With opiomaniacs the minimum term might be less, an added half-year for every two years' addition. Chloral and chlorodyne should rank with opium, chloroform and ether with alcohol. Then the premiums of the assurable cured might be loaded, from alcohol, with five years (with six months for every additional year of addiction); from opium, with four years and six months for every two years' additional duration. Policies, too, might be voidable on relapse, with return of the surrender value.

Treatment of Disease Without Alcohol.—Sir B. W. Richardson, of London,⁷²³ gives the results of the treatment of 200 cases in the London Temperance Hospital without alcohol, of which 116 recovered, 44 were relieved, 11 were discharged unrelieved, 29 died. J. J. Ridge, of Enfield,⁷²³ states that at this hospital tinctures of most of the drugs were prepared in the usual way except that, instead of alcohol, a mixture of glycerin and water was used in the proportion of $\frac{1}{4}$ to $\frac{1}{8}$ part of glycerin and about 5 per cent. of acetic acid. Gum-resins and essential oils were found to be insoluble in this menstruum; so were given in pill, powder, or mixture. But latterly standardized tinctures have been mixed with sugar of milk and the alcohol distilled off. The alcohol extract remains behind in a finely-divided condition mingled with the milk-sugar. This is broken up and compressed into tabloids of a definite dose, taken either in that form or rubbed up, dissolved, or suspended in gum-

water. The sp. ammon. aromat. is made without the spirit, the aromatic oils being emulsioned by rubbing up with fine sand.

MORPHINOMANIA AND OPIOMANIA.

J. H. Maxwell, of London,²_{Apr. 1} says that tobacco cannot be compared with opium-smoking in South China. Thousands of opium-takers come to medical practitioners for the cure of the opium-habit, but none on account of addiction to tobacco. Ernest Martin, of Pekin,¹⁵³_{Apr. 9} holds that smoking is the least perilous mode of using opium, rarely causing insanity or paralysis. Opium-eating is infinitely less dangerous than hypodermatic injections. Morphinomaniacs suffer from a tyrannic slavery which holds its victims fast.

Lacassagne, of France,²_{July 18} alludes to the large proportion of medical men among opium *habitués*. Of 545 morphinomaniacs, 289 were doctors. It is stated that several of the most-distinguished members of the profession in Germany, who have died in recent years, have been excessive opium-takers. J. L. Maxwell, of London,⁶_{Jan. 28} recalls the conclusions of Valentine,²⁰⁶_{June, '91} after thirty-one years of practice in India, that to opium is due a large percentage of mortality among children, crime, murder, and disease. More than three-fourths of between 800 and 900 prisoners in Jeypore Central Prison, fully twenty-five years ago, used opium, quite one-half of them to excess. Maxwell says that 100,000 persons commit suicide by opium every year in China. McReddie, of Hardoi,⁶_{Jan. 28} states that, in that limited district, of the 180 suicides in three years, 97 were from opium, 80 per cent. of these being women. Opium inquests are now common in Calcutta, there being one almost every day. W. B. Brooks, of Dallas, Tex.,⁸⁵_{Apr. 1, '98} argues that the morphine habit is sometimes the only cause of some severe forms of hysteria, neuralgia, chorea, asthma, and other nerve disorders; that morphinists, however confident of cure, are liable to relapse; that physicians are more prone to relapse than other morphinomaniacs, from generally having morphine in their possession and administering it, as well as from the despondency and excitement of their irregular life; that cured morphinomaniacs are less apt to relapse the second than the first time. One physician patient, who became addicted to morphine through having recourse to opiates for the relief of cough, returning home

too soon (on the eighth day), relapsed, but made, on a second trial, a permanent cure, after then remaining twenty-seven days.

Medical opinions for and against opium as an article of ordinary consumption have been freely expressed before the English Royal Commission, especially by Brigade-Surgeon Pringle against and Sir Joseph Fayrer in favor of its use. Lockhart, a medical missionary in China, has also testified that the evil effects have been greatly exaggerated. Wm. Huntley, of Jodhpur, ²³⁹_{Jan. 18} controverts Sir William Moore's laudations of opium, and characterizes its habitual use in India as most detrimental. Attention is called ²²_{Jan. 18} to the alarming prevalence of opium-smoking among the white population.

Symptomatology and Pathology.—Michaut ²⁰²_{Sept. 11} says that the Annamese, like the Chinese, use opium without exceeding their dose, *i.e.*, without daily augmenting the number of their pipes. The European, on the contrary, is more exposed to the accidents of intoxication, because he allows himself to exceed the number of pipes necessary to produce intoxication. Less habituated to the poison, Europeans exhibit a greater sensibility to its intoxicating influence. In this susceptibility toxic heredity plays a great part; in the Annamese and the Chinese there is produced an attenuation of the toxic potency, through successive impregnations of the individuals of the same family. The smoking of opium is not uniformly prevalent throughout Indo-China. The Tonquinese smoke far less than the Cochin-Chinese, and opiumania is peculiarly the characteristic of the higher classes and richer families, attributable to the relatively high price of the drug, especially since the establishment of farms and of the monopoly accorded to the European farmers. Opium, when smoked, causes muscular debility. The muscular coats of the intestine and respiratory passages are affected, inducing chronic diarrhœa or dyspnœa. Opium diarrhœa, due to paralysis of the muscular layers of the intestine, is one of the most terrible accidents where dysentery is endemic and cholera not rare. The paralysis of the muscular tissue of the stomach, joined to the common gastritis of warm countries (due to the immoderate use of ice) explains the incoercible vomiting of the smokers. The paralyzing action of opium on the muscular apparatus of vision causes lessened power of accommodation, diplopia, and the suffusion of the eyes with tears (epiphora) in veteran smokers. In acute

diseases, such as pneumonia, there is apt to be a delirium, as in morphinism or alcoholomania. So after injuries. If after a slight traumatism the opiomaniac is compelled to abandon the use of opium, he is attacked with acute delirium comparable to delirium tremens. In the East, officers and soldiers have often committed suicide in such an access of delirium. Opium produces paralysis of the extensors of the hands and fingers, almost identical with saturnine paralysis. This is generally seen only in heavy smokers who exceed their fifty pipes a day, or who have been smoking for from five to eight years or more. Alcohol aids in developing this paralysis, but if the ethyl poison and the opium poison unite in its production the alcohol exhibits only the action of an adjuvant. Differentially, in opiate paralysis there is no muscular atrophy, and the sensibility remains intact.

Edwards, of the Michigan Asylum for the Insane,³³⁷ Jan. classes under the denomination of toxic insanities a certain form of psychoneurosis, manifesting itself, as a result of prolonged opium-eating, in a person with an hereditary history of either alcoholic or opium dissipation. He cites several cases. The mother and maternal grandmother were, in one case, opium *habitués*. For eleven years the patient had indulged in alcohol intemperately, then had substituted opium, which he had used moderately for thirteen years, and for a year past immoderately. A sexual delusion as to criminal relations between his wife and son has been a leading symptom of the toxic action.

Happel, of Tennessee,³³⁷ Oct., '92 says that morphinism is a disease transmissible by heredity, the offspring of a victim to this disease having a condition of the nervous system which, once subjected to some exciting cause, rapidly develops the malady.

C. M. Buchanan, of Washington,⁸¹⁴ July, narrates the case of a female clerical worker, aged 25, who, on the hypodermatic injection of $\frac{1}{4}$ grain (0.016 gramme) of morphine sulphate, went over in her own mind, though she could converse with other persons rationally and quietly, every stage of a previous internal operation and every act of her convalescence, imagining the doctor to be her nurse. Hitzig⁸⁶⁶ May, June says that many of the symptoms complained of by patients undergoing the withdrawal of morphine resemble those related by the subjects of chronic gastric catarrh. Alkaline lavage diminished the suffering. The symptoms arose from hyper-

acidity, as determined by experiment on a physician. Pichon⁹⁹⁸_{May 28} describes some eruptions, due partly to morphine and partly to syphilis, occurring in morphinosyphilitics. Joseph Benjamin⁸³¹_{Aug. 1} states that prisoners at the Ahmedabad Jail addicted to opium, whose opium was stopped, lost weight only slightly in the beginning, and ultimately gained in weight. Grelletty¹⁰⁶_{July} says that the morphinomaniac's only chance of recovery is to enter some hospital and put himself unreservedly into the hands of a doctor.

Treatment.—Charles Lefèvre, of Paris,²⁴_{Aug. 9, '72} while approving of every moral means to warn people against morphine and cocaine indulgence, dwells on the adoption of prophylactic measures to surround the sale of such narcotics as morphine and cocaine with every possible safeguard against abuse. These perilous articles should be sold only to dispensing chemists, and the latter should supply medicine containing either poison only once, unless the medical man prescribing has written a contrary instruction on the prescription. Hypodermatic syringes and narcotic solutions should not be sold to any persons except medical practitioners and pharmaceutical chemists, only on a written prescription similar to that for medicines containing the dangerous drug. The signature of a doctor to such prescriptions should be perfectly legible, and the prescription should bear its date. At Berlin, a prescription, unless duly executed in these particulars, is not made up. In Paris and London, morphineries, like places for the smoking of opium, exist, where for a stated price the syringe is supplied full of the desired liquid. At present only the *Maison de Santé* and the asylum for the insane are available in France for the victims of morphine and cocaine. [In England and America, or in Germany and elsewhere, there are also Homes for Inebriates, where such cases of narcomania can be scientifically treated. But a law is needed to enforce the detention of these inebriates long enough to afford reasonable hope of cure.]

J. H. de Wolff, of Baltimore,¹⁹⁹_{Mar.} gives 20 grains (1.3 grammes) of sulphonal for sleep, with auri et sodii chlor. Stephen Lett, of Guelph,⁷⁶⁰_{Oct. 18, '72} narrates a case of double addiction (morphine and cocaine) whose daily ration was 60 grains (4 grammes) morphin. sulph. and 70 grains (4.65 grammes) cocain. hydrochlor. hypodermatically; and one of laudanum, 16 fluidounces (495 grammes) being taken daily. Amenorrhœa and sterility are generally

present, these functions resuming vigor on discontinuance of the opiate. J. B. Mattison⁷⁶⁰_{Oct. 18, '98} relates the case of a physician's wife, aged 34, who, after 40 grains (2.60 grammes) hypodermatically and one or two 5-grain (0.39 gramme) doses daily by mouth, advanced to 60 to 75 grains (4 to 5 grammes) daily of morphine by the mouth only, and at one dose. Afterward she resumed the hypodermatic injection of 40 to 50 grains (2.60 to 3.20 grammes) a day. Three women, dismissed cured, each took 30 grains (2 grammes) daily for years. Two were sisters; one had indulged for ten, the other for seventeen years. Administered by the skin, the narcotic action is double of that by mouth. He has generally found female morphinomaniacs neat and tidy. One laudanum-taker of twenty-two years' standing had reached nearly a pint (500 grammes) per day. The author⁸²_{Feb. 11} attributes nearly all his cases of narcotic inebriety to the medical prescription of the drug, in the first instance; though he recognizes the peculiar narcotic status, ancestral and acquired. It should be made felony for retail druggists to sell morphine, chloral, or cocaine, or to repeat a prescription containing either drug, except on order of a physician. Enr. Chambard¹⁷⁵_{Mar.} approves of the rapid method of treating morphinomania in a special institution.

COCAINOMANIA.

Duany-Soler, of La Rochelle,¹⁰³⁴_{Jan. 1} narrates the case of a young person, aged 14, who labored under intense cerebral excitement, with loquacity, agitation, dilated pupils, dry throat, and agonizing headache. By topical application to the throat, drops in the ear, and by being swallowed in bonbons, 25 centigrammes (4 grains) had been taken. Recovery took place gradually. Idiosyncrasies play an important part in the influence of cocaine. Some subjects cannot stand even very small doses; others are unaffected by large doses. In more than a thousand instances in which a 20-per-cent. solution had been applied to the urethra, only three sick persons had evinced abnormal symptoms, and all three recovered.

TOBACCOISM.

J. W. Seaver, of New Haven,¹⁰³²_{Jan.} gives particulars of the comparative condition of 77 non-users of tobacco, 22 irregular users, and 70 habitual users, at Yale University. In weight the non-users,

in 1891, increased 10.4 per cent. more than the regular users, and 6.6 per cent. more than the occasional users. In height the non-users increased 24 per cent. more than the regular users and 14 per cent. more than the occasional users. In chest-girth the non-user had an advantage over the regular user of 26.7 per cent., and over the occasional user of 22 per cent. In lung-capacity the growth was in favor of the non-user 77.5 per cent. when compared with the regular user, and 49.5 per cent. compared with the irregular user. B. H. Brodnax, of Brodnax, La., who has been a smoker for over thirty years, says¹⁸ that, after the use of $\frac{1}{80000}$ grain of strychnine, odors and sounds perceptible to non-smoking friends are not perceptible by him. Dyspepsia is a common accompaniment, and 80 per cent. of the smokers he knows are affected with a dryness of the upper lid, from diminished mucous secretion, constituting the smokers' sore eye.

Francis Dowling, of Cincinnati,¹⁹ dwells on the influence of tobacco in causing amaurosis. He found in 3000 tobacco-workers, in Cincinnati, 150 with impaired vision. A woman of 40 had amblyopia. She had not used tobacco, but had been working in it from five to six years. Few of the men drank. The men were mostly flabby and anæmic. The majority of the 150 had both pupils contracted; 45 showed amblyopia, 30 being well-marked; 30 had gradual failure of vision. Some smoked 20 cigars a day. Three-fourths were over 35, the oldest being 61. Those affected had disturbed sleep, their muscles were easily tired, and their hands trembled on holding a book or pen. One young man of 19 was affected. Noyes has recorded the case of a boy of 15, who exhibited similar symptoms from cigarette-smoking. With chewing the effects were more intense. On ophthalmoscopic examination the papillæ of the optic nerve were seen to be abnormally reddened at first, later anæmic, ending finally in atrophy of the disc.

MISCELLANEOUS.

Antipyrin.—Carppelletti,⁵⁷ describes a mania for antipyrin in a neurotic female, aged 23, who had indulged in antipyrin for two years, taking 8 grammes (2 drachms) daily. The symptoms were anorexia, insomnia, tinnitus aurium, and muscular feebleness. She entered an asylum for treatment. The dose was greatly reduced, and potassium bromide and caffeine administered. The

reduction for a time produced grave prostration and functional disturbance.

Paraldehyde.—F. A. Edkins, of Edinburgh, ⁸⁶_{July} gives the history of a case of paraldehyde habit in a coachman, aged 65, with an alcoholic inebriate brother. Sixteen ounces (500 grammes) a week were taken for the greater part of two years. Insomnia, emaciation, prostration, and nervous irritability were exhibited. Heart's action weak and irregular; pulse intermittent and soft; palpitation. Stomach derangement, flatulence. Muscular weakness and tremulousness, "strange feelings" through body; hallucinations of sight ("strange beasts"), of hearing (death to appear in paper), delusions of being poisoned, tormented, etc. He was three months under treatment, and recovered.

Naphtha.—J. H. Kellogg, of Battle Creek, ⁸⁵⁵_{Feb.} notes the advent of a new intoxicant, naphtha, the fumes of which are inhaled by Parisian women. The symptoms are described as similar to those arising from ether. It is stated that intoxication by the chewing of tea has been originated in Boston, where, a few years ago, two servant-girls, on being arrested for having been drunk and disorderly, were found to have become tipsy on tea.

Ether.—Jules Christian, of Paris, ¹⁴⁷_{June} reports a case of etheromania which, after sixteen years' persistence, ended in epileptiform convulsions and death.

DISEASES OF THE UTERUS, TUBES, OVARIES, AND PELVIC TISSUES.

By E. E. MONTGOMERY, M.D.,

PHILADELPHIA.

DISEASES OF THE UTERUS, ETC.

GENERAL CONSIDERATIONS.

Abdominal Pain.—Herman, of London, ¹⁸⁷⁷_{Nov. 9, '78} enumerates the different kinds of chronic pain in the pelvic region, and gives points concerning it which aid in forming an opinion of the cause without vaginal examination, when the latter is not possible. He divides abdominal pain into the following classes:—

1. Pain from tired and stretched muscular and fibrous structures. Common in women whose muscles are weak, nerves sensitive, and who are often anæmic. Dull, aching, not severe, but persistent. Relieved and removed by lying down. Also characteristic of uterine displacements.

2. Pain due to chronic pelvic inflammation. Like the first referred to, the lower abdomen and back and sometimes down the thighs. Generally dull, aching, continued, sometimes throbbing, remittent, severe pain; lessened, but not entirely removed, by lying down. If the ovary is the seat of the pain the patient will point to a spot about two inches internal to the anterior superior iliac spine; if the uterus, to the hypogastrium; backward displacements of the uterus, to the sacrum. Aggravated by alcohol, approach of menstruation, and sexual intercourse.

3. Pain due to uterine contractions, felt in the lower abdomen and the back; paroxysmal, lasting a minute or more, preceded and followed by freedom from pain. Often made worse by recumbency. True dysmenorrhœal pain. Often felt with fibroids.

4. Renal pain, referred to the pelvis. Identified by the seat of the pain, which is over the kidney, but radiates over the abdomen and down the thigh. Also vesical irritability and pain in micturition, met with in most pelvic inflammations as well. Renal

diseases which cause pain are: calculus, inflammation of the ureter, pyelitis, malignant disease, movable kidney, and chronic nephritis.

5. Disease of the stomach, as atonic dyspepsia, chronic gastritis, gastralgia, ulcer, and cancer. Pain dependent on taking of food, which is not the case with uterine pain.

6. Disease of the intestines—colic, lead-colic, constipation, etc. Shifting pain, not relieved by lying down, while uterine or ovarian pain is definitely in the pelvis.

In the diagnosis of visceral neuralgias we rely mainly on the absence of signs of disease in the painful part and, excepting when the pain is present, of any impairment in its function; on the peculiarities of the patient, her physique, temperament, and habits; on the character of the pain, which is usually intermittent or remittent, occurs in paroxysms alternating with intervals of freedom from pain or only slight pain; on the effect of treatment. Neuralgic pains vary with the patient's health, getting worse when it is poor, better under tonic treatment. This is not, however, peculiar to ovaralgia. Neuralgic pain is most always relieved by alcohol and unaffected by position. Inflammatory pelvic pain is aggravated by alcohol and relieved by recumbency. Patients subject to neuralgia are: (1) those whose nervous system has been depressed by anæmia, the brain and nerves not being nourished by healthy blood; (2) patients suffering from loss of sleep; (3) persons of originally neurotic temperament, hereditary or acquired, generally both inherited and developed by education. Among neurotic patients we have two forms: the indolent and introspective, who are continually thinking about themselves, and the active, observant, who think of others. The former are often fat, easily tempted to alcoholic excess; what they need is rousing and occupation. The second type are vivacious, generally thin, bad sleepers, and uncertain eaters. They are quick, irritable, sensitive, and clever. They should be given a generous diet and lessened labor, and are benefited by arsenic.

Abdominal Brain.—F. B. Robinson, of Chicago, ¹_{Dec. 10, '98} states that clinical observation of several thousand women has demonstrated that a woman goes through definite pathological stages from uterine disease, and that the explanation is clear and logical when made through the abdominal brain by reflex action. There

are five stages of uterine disease: 1. Lacerated cervix or endometritis; this pelvic irritation is reflected by the ovarian plexuses and abdominal brain, where the forces are reorganized. 2. The irritation is sent from the abdominal brain over tracts of least resistance, which will be the nerve-plexuses containing the greatest number of nerve-cords. The first manifest trouble will be the disturbance of rhythm of the digestive tract, stomach, intestines, liver, spleen. The automatic ganglion and the walls of these viscera are irritated as the result of indigestion. 3. The third stage is malnutrition. 4. The fourth stage, from pelvic disease, is anæmia. 5. The fifth stage is neurosis.

Uterine Disease and Insanity.—More-Madden, of Dublin,¹⁸⁷⁷ Jan. 4 believes that hysterical symptoms about the epoch of female puberty are generally directly consequent on some disturbance of the complex structural or functional changes then in process in the reproductive system, the predominant influence of which is apparent at every stage of woman's life, until the termination of the period within which gestation is possible. Cerebral disease is not always traceable in cases of insanity, and it is probable that a large proportion of cases of mental disease in female patients is due either to disordered menstruation, with ovarian and tubal irritation, or to puerperal causes affecting the vascular condition and functional activity of the brain, inasmuch as by the direct removal of one or other of these causes Madden has been, in more than one instance, successful in restoring to mental and physical health patients previously confined in lunatic asylums.

Rohé¹⁸⁹⁶ Feb. 10 states that, of thirty-five insane women examined, twenty-six, or 74.3 per cent., showed some evidence of pelvic disease or abnormality, and he believes that 50 per cent. of all insane women have some form of pelvic disease. He reports eighteen cases in which the uterine adnexa were removed, the duration of insanity in these cases having lasted from one month to eleven years, and in all but one had lasted over a year. When the paper was read, three of the cases operated upon had been discharged recovered, and in ten there had been a decided improvement in the physical and mental symptoms. Two had died after the operation. These results, he believes, justify the prosecution of gynæcological work among the insane.

DISORDERS OF MENSTRUATION.

Amenorrhœa.—Herman²² states that the most common causes of amenorrhœa are: (1) anæmia; (2) wasting diseases; (3) certain nervous diseases. If anæmia is present, there is no need to make a vaginal examination. The diseases which produce anæmia may be divided as follows: (a) idiopathic chlorosis, pernicious anæmia, leukæmia, Hodgkin's disease; (b) secondary to some definite cause, as deficient nutrition, increased waste. Deficient nutrition, or want of food and oxygen, is found in many diseases of the stomach or in patients who breathe bad air. The causes of increased waste are: hæmorrhage, albuminous discharges, hæmorrhage from piles, scurvy, purpura, injury, as in hæmophilia; hæmorrhage from the stomach, as in gastric ulcer; from the lungs, or from the nose, and from a rare disease produced by a parasite in the duodenum,—the *anchylostoma duodenale*. Long-continued suppuration, albuminuria, chronic diarrhœa, malignant ulcers, tubercular disease, all impoverish the blood, and so may cause anæmia. Chlorosis is, perhaps, the commonest cause of suppression of menstruation. A diagnosis must be made between chlorosis and (1) secondary anæmia, and (2) the serious forms of idiopathic anæmia, which are incurable. All diseases that cause wasting of the body at length stop menstruation. Chief among these are phthisis, diabetes, caries of bone, protracted or febrile illness; one of the most important is that known as *anorexia nervosa*, which means that the patient gets thin because she will not eat. Pulse and respiration are slow, temperature often subnormal. The patient should be taken away from home and be waited upon by an attendant of strong will, who should insist on the patient's taking food in small quantities at short intervals; liquid food at first, then an ordinary diet. With a good nurse and isolation, cure is quick and certain.

Another condition in young women, which should not be overlooked, is ulcer of the stomach. Nervous diseases which may give rise to amenorrhœa are imbecility, cretinism, and exophthalmic goitre.

Dysmenorrhœa.—A. Routh¹⁰⁷⁷ regards dysmenorrhœa as a symptom, not a disease. The pain, in its site, character, time of onset, duration and reflex phenomena, may vary according to its cause, which may be constitutional or local, or both. The consti-

tutional causes are mainly spasmodic, and may result from chronic constipation, anæmia, chlorosis, and exhausting diseases, such as diabetes, Bright's disease, or phthisis; the specific fevers, as typhoid and scarlatina, may produce cirrhotic changes in the ovary. General diseases, as acute and chronic rheumatism, are most likely to lead to pelvic mischief from fibrous change of the ovary. Local changes may be divided into: (1) spasmodic (usually constitutional); (2) congestive, primary or secondary (often constitutional); (3) inflammatory—uterine, tubal, ovarian, peri-uterine; (4) obstructive (rare)—stenosis (organic), displacements, fibroids, altered uterine contents.

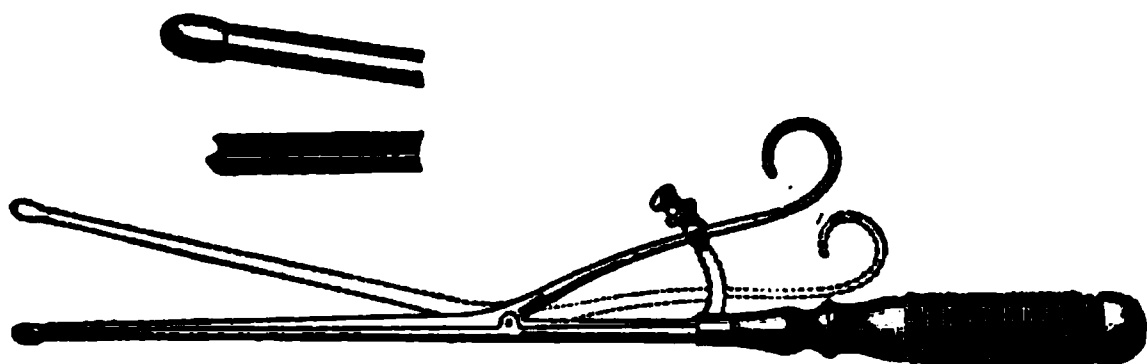
Spasmodic dysmenorrhœa may be independent of either local or constitutional disease. It is then probably of the nature of a neurosis. It is generally due to painful contraction of the hollow uterine muscle, and may either be clonic or tonic. The contractions may occur when the uterus is empty, and are then more severe than even the obstructive pains of membranous dysmenorrhœa. Pain is often accompanied by nausea and vomiting; frequently severe headaches, frontal or migraine type, and always precedes the menstrual flow, sometimes by ten days or a week; usually more severe just before the flow begins, diminishing as it appears. Congestive dysmenorrhœa may result from shock, exposure, or protracted fatigue; from inflammation, fixation, or prolapse of either uterus or ovaries; cardiac, hepatic, pulmonary, or renal disease. Occipital headache and pain in the top of the head are characteristic, accompanied with bearing down, leucorrhœa, and other pelvic phenomena. Inflammatory dysmenorrhœa results from endometritis, metritis, salpingitis or ovaritis, and is associated with the arrest or disarrangement of such part of the function of menstruation or ovulation as is respectively performed by them. Salpingitis and adhesive peritubal peritonitis produce tubal dysmenorrhœa, which is usually post-menstrual and associated with sterility. Ovarian dysmenorrhœa means that the process of ovulation is performed with difficulty and pain. It may precede, accompany, or follow the menstrual flow. It takes place during the ripening of the ovum and enlargement of the Graafian follicle, especially when the latter is prevented from rupturing by acute or chronic ovaritis. Obstructive dysmenorrhœa is rare. Pain is often twofold, partly due to the mechanical dilatation of

the sensitive internal os uteri, partly to the spasm induced by that dilatation. Fibroids may cause obstruction by narrowing or twisting the canal or favoring displacements. Constitutional treatment will decrease the spasm. Opium, however, should not be given if possible, since its monthly repetition may lead to its abuse. In severe paroxysms it may be necessary, however, combined with atropine, belladonna, or hyoscyamus. Nitro-glycerin and amyl nitrite are useful in spasmodic cases unaccompanied by headache. Bromide of ammonium is indicated in nervous cases with ovarian irritation, where the period stops and comes on again. Cannabis Indica, $\frac{1}{4}$ - to $\frac{1}{2}$ - grain (0.016 to 0.03 gramme) doses of the extract, or 2 to 5 grains (0.13 to 0.32 gramme) of the tannate, is a valuable substitute for opium, especially when there is menorrhagia. Antipyrin in 15-grain (1 gramme) doses is probably the best of all drugs in systematic dysmenorrhœa, especially if accompanied by headache. Rest before and after the period is valuable, with warmth to the skin, especially abdomen and feet. After the period iron, arsenic, acetate of ammonium, and purgatives are indicated for the anæmia and chlorosis. The distant organs, if affected, especially the liver, skin, and bowels, are also to be treated, and alcohol, sexual excess, mental or physical overwork, improper or deficient food, unsuitable or tight clothing are to be avoided.

Where inflammatory trouble about the uterus and tubes is absent, the condition may be benefited by dilatation, under anæsthesia, preferably with bougies. Spasmodic dysmenorrhœa may be cured or relieved by passing sizes up to about No. 12 before the period. The patient should rest in bed subsequently for at least a week, and on the sofa until after the next period. In congestive dysmenorrhœa the condition is best treated by rest, correction of displacements, and constitutionally the use of ergot to drive the excess of blood from the uterus. He would give the following pill: ergotin., 1 grain (0.065 gramme); extract aloes, $\frac{1}{4}$ to $\frac{1}{2}$ grain (0.016 to 0.03 gramme); extract nux vomica, $\frac{1}{2}$ grain (0.03 gramme); hydrarg. perchlor., $\frac{1}{20}$ grain (0.003 gramme); extract belladonna, $\frac{1}{8}$ grain (0.02 gramme); make a pill; to be taken once a day. Ergot should be discontinued some days before the expected period, and bromide of ammonium substituted.

M. Handfield-Jones² believes that the uterus dilates its

canal and undergoes contractions in menstruation as in labor. When the organ is in a healthy condition the function is performed painlessly. Pain may be caused by the same conditions as lead to delay in first stage of labor. Among these causes are displacements of the uterus, and muscular spasm of the sphincter fibres of the internal os. Dilatation is only palliative and temporary. Belladonna given with the advent of pain relieves by relaxing the spasms. Fibroid thickening of the cervix is a common cause, overcome by dilatation. In some cases the resistance is so great that the contractions must be nicked before they will give way. Hyperæsthesia of the nerve-endings at level of the internal os is another cause. This may give rise to acute suffering when accompanied by endometritis; leeches, saline aperients, applications of carbolic acid and iodized phenol are of value. Rapid dilatation will often result in a cure at once.



RAPID UTERINE DILATOR. (MORE-MADDEN.)
Provincial Medical Journal.

Thomas More-Madden ²⁶_{July} attributes dysmenorrhœa to obstruction, in the great majority of cases, and advocates rapid dilatation by means of dilators. The accompanying diagram shows the instrument which he uses for this purpose. The flexion or obstruction is due not so much to the flexion itself as to the accompanying endometritis. In some cases coition is a cause. Cold is another. Dilatation is only a temporary expedient. In severe cases it is better to divide the cervix, the endometrium to be subsequently treated.

Reamy ¹_{June 10} advocates repeated curettings at short intervals for membranous dysmenorrhœa, and recites four cases in which cure had resulted. After each curetting the canal had been carefully treated to an application of pure carbolic acid. No unfavorable result had occurred in any case, and in one case conception had followed.

W. J. Sinclair, ²_{May 27} in discussing menstruation after operation

on the broad ligament, concludes: 1. Hæmorrhage after removal of the ovaries and tubes, whether immediate or remote, depends almost purely on anatomical, not physiological, considerations. If the arteries are tied, even though the tubes and part of the ovaries be left, involution will follow in the body of the uterus and menstruation will cease. If the arteries are not tied there will be produced metrostaxis, and menstruation will continue, it may be, for many months and for years, even when the ovaries and tubes have been carefully removed. 2. If this be true, then it follows that the Fallopian tubes have no special physiological function in menstruation; they are neither the cause—if any meaning can be put into the term—nor the starting-part of menstruation. 3. A practical deduction from the whole matter is that, in operating on the broad ligament for the purpose of bringing on the menopause or involution of the uterus, the operator should endeavor to tie the chief branches of the ovarian arteries; especially is this the case when the object sought is to bring about retrograde changes, owing to the presence of small fibroid tumors of the uterus. There is little or no danger of starving the uterus by cutting off the blood-supply to a dangerous extent. The danger is almost always that too little will be done and the object sought for only imperfectly attained.

Intermenstrual Pain.—C. D. Palmer ⁴²⁶_{Dec., '92} regards periodical intermenstrual pain as a comparatively rare disease, the origin being ovarian, not uterine,—an oöphoritis or peri-oöphoritis, or both; the chief exciting cause of these attacks is the morbid obstruction to the extrusion of the contents of the Graafian follicles. Many other morbid conditions—uterine, peri-uterine, or ovarian—may be associated with oöphoritis or peri-oöphoritis, but their presence is not the cause of the essential symptoms. Cure is effected only by overcoming the disease of the ovary or by its extirpation.

Menorrhagia.—Thomas Savage, of Birmingham, ⁴⁹_{May} states that hæmorrhage of the uterus may be divided into two classes: (1) hæmorrhage associated directly with some condition of the uterus itself; (2) associated with some condition outside the uterus. Of the first class there are a number of diseased conditions of the uterus which have the common symptom of hæmorrhage, such as chronic metritis, chronic endometritis, fungous endometritis, and subinvolution,—conditions which it is not infrequently difficult and

often impossible to differentiate. The local treatment in such cases should consist in curetting, the application of the positive or acid pole of the battery, the thermo- or actual cautery, and escharotics, such as carbolic acid or the fuming nitric acid. Menorrhagia associated with the climacteric may continue for months or even years, and the menopause may be delayed, especially when the hæmorrhage is caused by a small myoma or a myomatous degeneration of the uterus at about the age of 50. In some of these cases it may be necessary to remove the appendages. The most frequent cause of hæmorrhage is incomplete abortion. This is best treated by passing uterine forceps into the cavity, bringing away the ovum tissue and swabbing it out with carbolic acid. Where this is ineffectual, dilatation may be done by means of tents; it is attended, however, with the danger of blood-poisoning; elastic pressure is tedious, painful, and often uncertain; Hégar's dilators are not quite satisfactory. Cancer and myoma are also frequent causes. Hæmorrhage in cancer may be often arrested by an application of perchloride of iron or the use of an actual cautery. In myoma three methods of treatment may be used: (1) general remedies, *i.e.*, systematic rest, carefully regulated dietary and especially the limitation of animal food; (2) special remedies, as ergot, hamamelis, hydrastis, digitalis, and bromide of potassium; (3) local remedies, perchloride of iron applied to the cervix, or other styptic or cauterizing agents, such as nitric acid, actual cautery, electricity with positive or acid pole. Hæmorrhage occasionally occurs as a result of flexion of the uterus, and in such cases restoration and maintenance by the use of a pessary may be sufficient. Causes not directly associated with the uterus may be extra-uterine hæmorrhage, the presence of a small cystoma or a dermoid tumor, chronic inflammatory diseases of the appendages, obesity, and constipation. Disease of the heart or liver may cause pelvic stasis and give rise to blood discharge.

Metrorrhagia.—Braithwaite, of London,⁶ reports a case of incurable metrorrhagia in which the uterus had been dilated and curetted, applications of perchloride of iron made, and finally the ovaries and tubes removed. At the end of three months the patient was able to resume her labors and did house-work. She then fell down stairs, had a hæmorrhage from the uterus, which did not yield to perchloride, fuming nitric acid, and so on until it

was considered necessary to do hysterectomy. Braithwaite, however, dilated the uterus and introduced some cotton-wool, wet with deliquescent fluid from sticks of solid chloride of zinc, wrapped around a piece of iron wire. The wire, with its burden of wool, was left in the uterus for twenty-four hours and withdrawn. A week later a slough of the entire cavity came away, and the uterine cavity, subsequently, was obliterated and the patient cured.

Bloom¹¹⁹ advocates the use of atropine in uterine hæmorrhage, and says that he has used it in thirty cases without failure to control hæmorrhage. It is preferably given hypodermatically in doses of $\frac{1}{160}$ grain (0.00065 gramme).

Precocious Menstruation.—Jacobovitch² reports a case of a child, 6 years of age, who menstruates several times yearly, especially in summer, the period lasting from three to four days.

Menopause.—A. H. Bigg,⁸¹⁴ in discussing the relation of the menopause to certain coincident disorders in women, concludes: 1. In women whose nutrition is uniformly approximated to the normal standard, and who reach this period unhampered by pre-existing ailments, the final cessation of menstruation occurs without material disturbance of the functional harmony and is often of cosmetic advantage. 2. The association of morbid conditions with the menopause is accidental and the result, usually, of antecedent causes, especially of unphysiological living. 3. The influence of perfect nutrition and natural living during the premenstrual and adolescent years upon the after-life of women is of the most salutary and far-reaching kind; hence, it is of the utmost importance that medical men should unceasingly impress the fact upon mothers to initiate a natural development of the physical organism of girls by the most nutritious diet at regular intervals, by abundance of out-door exercise, by the avoidance of late hours, and by a system of school instruction which shall be graduated to a rational output of mental energy by the adolescent faculties.

Kisch⁸⁹⁹ regards hæmorrhage as of the first importance in the climacteric, and as calling for active treatment. Purgatives should be employed, particularly against the hyperæmic disturbances and collateral congestion which give rise to the complex symptoms of abdominal plethora. No drastic purgative, however, should be employed, but only such as exercise a gradual and continued influence upon intestinal activity, such as pulp of prunes, tana-

rinds, manna, rhubarb, and the moderate salts. Enema and intestinal irrigation are also of value, with dietetic and hygienic measures, Glauber salts, and potash-salt waters. In severe hæmorrhage rest and cold-water injections are indicated, with the addition of aqua ferridi, *sub* aqua chloridi (15 to 250). If the flooding does not cease, the vagina should be tamponed with iodoform gauze, and ergot given internally, 20 drops every hour or two.

In the treatment of pruritus of the vulva or vagina, so often a complication of the menopause, this author advises that the patient be given a lukewarm bath 25° R. (88° F.) before going to sleep, with the addition of 1 kilogramme (2 lbs.) of wheat-bran, placed in a linen sack in the bath. After the bath the vulva and surrounding parts are dusted with the following powder: Salicylic acid, 1 part; starch and talcum, each 50 parts; mixed and used as a dusting-powder, several times daily. Of special significance in the climacteric is the diet. In women with round, full forms, disposed to excessive formation of fat, a light, anti-fat regimen should be prescribed; while in women of nervous and irritable nature nutritious food with abundant starch, plenty of sugar and water, and sufficient rest of body and mind are indicated.

INFLAMMATORY DISORDERS.

Cervicitis.—Bedford Brown, of Alexandria, Va., ¹_{Dec. 17, '92} believes that simple trachelitis never originates from infection, and may exist for an indefinite period without infecting surrounding structures. Septic trachelitis always arises from septic infection and in itself becomes a centre of infection for the adjacent pelvic structures. Contact of portions of putrescent placenta, membranes, and coagula with the os; and septic discharges from the diseased uteri are common causes. Antiseptic measures alone are of value, all other agencies being simply palliative or adjuvant. Traumatic trachelitis or simple inflammation and congestion of the cervix may occur from wounds inflicted on that body during labor or abortion, or from the use of dilating instruments. Specific trachelitis may arise from either gonorrhœal or septic infection. In early stages the author resorts to douches containing peroxide of hydrogen in the proportion of 1 to 3 of boiled water, or permanganate of potassium, a grain (0.065 gramme) to the ounce (30 grammes).

Laceration of the Cervix.—J. W. Hyde, of Brooklyn, ¹⁵⁷_{Feb.} states that in cases where the injury is recent and the constitution of the patient is so good that no extensive degenerations have occurred, and where there is a reasonable probability of being able to restore the cervix to a normal condition, this should be done by Emmett's operation; in all cases where extensive alterations have taken place, as proved by direct examination and not less certainly by the unmistakable and intractable reflexes that attend such alterations, the unbearable headaches usually referred to the vertex and the nuchal region, the gastric disturbances and the endless procession of psychic, neurotic, motor, cardiac and respiratory aberrations, so familiar to every experienced physician, trachelorrhaphy is out of the question. In such cases amputation is as effective clinically as it is logical in theory. The best results are obtained by the galvano-cautery, the operation being no more dangerous than trachelorrhaphy; it does not seriously militate against conception or a normal gestation and delivery.

Endometritis.—W. A. Briggs, of Sacramento, ²³_{Feb.} divides the causes of endometritis into predisposing and exciting, or passive and active, and the former again into systematic and local. The systematic predisposing causes embrace all those conditions of the body at large which favor suppuration or impair the resistance of the tissues to the invasion of pathogenic microbes. Foremost among these are: the tubercular diathesis, syphilis, chlorosis, rheumatism, and acute traumatism due to instrumental or manual delivery at term, or removal of the after-birth, and abortion. Digital examination, the introduction of the sound or applicator, minor operations on the cervix, pessaries, curettage, sexual intercourse, fall into the same category. Cotton or lamb's wool is no antiseptic, or if retained indefinitely, as it sometimes is, from carelessness, affords the best possible nidus for the lodgment of bacteria and the subsequent infection of the uterus. Infection is favored also by the recumbent position in childbed, which affords an opportunity for the development of bacteria; while flexions, growths in or about the uterus, and backward displacements hinder the uterine circulation, induce stasis, impair the local nutrition, and favor excessive secretion. Constipation acts in the same way. Abnormal patency of the vulva, as a result of relaxations of the perineum; laceration of the cervix, with eversion of the cervix and endome-

trium, favor infection, especially when associated with vaginal leucorrhœa and uncleanly habits. In gonorrhœal and tubercular endometritis, their specific cocci or bacilli are invariably associated in a causative relation.

Briggs recommends 1 ounce (30 grammes) of common table-salt dissolved in 2 quarts (litres) of warm water for irrigation of the vagina, not less than a quart being used, each time the acid solution of mercuric chloride is employed. The prolonged use of the latter, however, exposes the patient to the danger of mercurial poison, and should be alternated with creolin, 0.5 to 1 per cent.; and if the treatment last more than a month, the latter should be employed entirely. A patient should use these ablutions and injections twice daily, and always just before visiting the physician's office. The physician should supplement them by careful cleansing of the canal before introducing an instrument into the uterine cavity. This is sometimes difficult, and is best accomplished by carrying 1 drachm (4 grammes) of powdered sodium biborate or bicarbonate into the cervical canal by means of a cotton-wrapped applicator. When abundant secretion accumulates and stagnates in the uterus, the author has found it advantageous to cleanse the cavity by injections of peroxide of hydrogen. If the cervix is patulous, as it generally is in such cases, the injection may be made through a soft-rubber catheter. As regards remedial measures, creasote is the equal of carbolic acid as a solvent for iodine, and camphor creasote is greatly superior. The advantages of this combination are: (*a*) it does not coagulate albumen; (*b*) being thick and oily, having no affinity for water, it does not come in such rapid contact with the mucous surface as tincture of iodine does, hence is not so likely to produce severe pain; (*c*) it contains by far the largest ratio of iodine of any liquid preparation with which he is acquainted. Electricity is a valuable agent in the treatment of metritis and endometritis, relieves pain in ten minutes, arrests hæmorrhage, promotes uterine circulation and the absorption of inflammatory exudates, secures deeper penetration of anti-septic remedies, and produces either electro-chemical or electro-thermal cauterization.

Herman E. Hayd, Buffalo,¹⁷⁰ advocates glycerin tampons, either with boroglyceride, 50 per cent., or ichthyol, 15 per cent., or glycerin and tannin, every other day, and on the intervening day

the painting of the vault and cervix with Churchill's tincture of iodine, or the application of negative galvanism with Goelet's clay electrode. Drainage is absolutely necessary, and should be accomplished by dilating the uterus and the introduction of iodoform gauze.

Chronic Metritis.—Lutaud, ²⁴_{Feb. 5} in discussing the medical treatment of chronic metritis, makes two divisions: (1) simple catarrhal metritis; (2) fungous hæmorrhagic metritis. In the former the uterus is more or less increased in volume, with hypertrophy and dilatation of glands. The lesion corresponds to the principal symptom,—a dirty leucorrhœa. The patients complain of abdominal weight, lumbar pain, discharge of a viscid liquid resembling raw white of egg, which adheres to the vulva, to the hair, and to the clothing. Catarrhal metritis, which almost always has for its origin a defect in involution of the uterus after parturition, is often accompanied by ulceration and tears of the neck. These complications are curable, the former by local cauterizations, the latter by Emmett's operation. The second variety is characterized by a more-grave symptom,—hæmorrhage. Sometimes the menstrual discharge is simply prolonged, exaggerated, and accompanied by dysmenorrhœic pain; sometimes it is retarded or advanced, but always very abundant, and alternating with profuse leucorrhœa. A discharge of a portion of the membrane or mucus is observed, indicating the profound lesion of the mucous membrane. The cause of this variety of metritis is found more frequently in abortion than parturition; in many cases he observed the elimination of fragments of mucus or placental tissue. Curetting is to be reserved for grave cases, or those in which retention of portions of the placenta is suspected. Lutaud proposes (1) gradual dilatation with laminaria; (2) irrigation of the cavity with a double catheter; (3) the introduction into the uterus of aseptic sponges and medicated agents and applications to the diseased mucous membrane. The laminaria, which is permitted to remain in place for twelve hours, is made antiseptic by being previously placed for five minutes in a 1-to-1000 sublimate solution. To introduce it, the neck of the uterus is exposed by a speculum and the anterior lip seized with a tenaculum. This is held with the left hand and traction with more or less force exerted, which straightens the canal and prevents the organ being forced back, thus facilitating the introduc-

tion of the tent. Three or four tents must sometimes be used before the cervix is sufficiently dilated for the treatment.

A tube with double current is introduced into the dilated uterus, which is irrigated with 1 or 2 gallons (4 to 8 litres) of very hot liquid (38° C.— 100.4° F.), preferably a 3-per-cent. solution sodium carbonate. If the uterus is infected he gives naphthol, salol, chloral, āā 5 grammes ($1\frac{1}{4}$ drachms); alcohol, 250 grammes (8 ounces), and previously a tablespoonful of coffee in a litre (quart) of water. The vagina and the neck of the uterus have been disinfected by the vaginal injection.

Sponge has been recognized to have a more marked influence upon the surface than laminaria. The ordinary sponges are washed in a solution of naphthol or sublimate, 1 to 1000; afterward compressed and cut in cone-shape and preserved in a small bottle well stoppered and filled with iodoform or salol. The introduction of this sponge, rendered easy by dilatation with laminaria and irrigation, constitutes a very useful and very active medication. After it has been in place six or eight hours, it should be removed and a new intra-uterine irrigation made.

This treatment insures the recovery of chronic metritis of medium intensity; but in some cases where the uterine membrane has undergone changes which render it ineffectual, the sponges should be soaked in a more caustic agent; after preparation as before, they should be placed for some minutes in the following:—

Salicylic acid,	.	.	.	.	1 gramme (15½ grains).
Alcohol,	.	.	.	.	10 grammes (2½ drachms).
Water,	.	.	.	.	q. s. ad 240 grammes (8 ounces).

Boursier⁷⁰_{Oct. 23, '92} relates his experience with the use of sulphate-of-copper crayons in the treatment of chronic metritis,—a plan advocated by Dumontpallier. Each crayon consists of equal parts of sulphate of copper and wheat-flour, and contains 50 centigrammes ($7\frac{1}{4}$ grains) of the copper. Twenty-seven patients were treated. The crayon was introduced and kept in place by a tampon of iodoform gauze. Seven did not return to the clinic after the first dressing; of the remaining twenty, nine received but one crayon; in several the pains were so severe that they refused to submit to another application. Others had vomiting, syncope, and such an eschar that he did not again resort to it.

Posterior Parametritis.—H. G. Locke¹_{Apr. 1} states that posterior

parametritis, by its hardening and subsequent contraction, obstructs the flow of blood into the rectum, producing stasis and a varicose condition of the rectal plexus; by the irritation and abrasion of the mucous membrane, ulceration follows; in a large number of cases the symptoms are reflex and refer to the genital system, primarily the region of the ovaries. Treatment of parametritis in most cases is not completely successful unless careful attention is directed to the rectum, whereby the reflex and most troublesome symptoms are relieved.

DISPLACEMENT.

Retrodisplacements.—F. W. Cushing, of Boston,²³ in discussing the operations for backward displacements of the uterus, believes that Alexander's operation presents these disadvantages: 1. Finding the round ligaments is often extremely difficult, and the extensive and protracted search is attended with grave dangers even in skilled hands, much more so when the operation is performed by men without surgical and anatomical knowledge. 2. The ligaments are often of extremely slight development when found; so frequently, in fact, that it seems as though retrodisplacements were often a consequence of this want of development. Such slender ligaments are often difficult to find. They are easily broken during operation, and are insufficient to support the uterus afterward. 3. The wounds are particularly liable to suppurate, much more so than is a median incision, and this is due (*a*) to the extensive injury to the tissues that so often occurs in searching for the ligaments; (*b*) to the fact that the loop of ligament left in the depth of the wound is injured in its vitality, separated from its nutrient supply, pierced and strangulated by the sutures which held it in its new position; (*c*) because the incision for Alexander's operation opens cellular spaces which cannot be closed by sutures, as can those opened by the median incision; (*d*) if the part of the round ligament which is drawn out be cut off, there is danger not only that it will slip away when the sutures are removed, and thus leave the uterus with no support, but that in thus slipping back the peritoneal cavity may be infected; (*e*) there are two wounds in Alexander's operation against one in ante-fixation, and similarly two chances for subsequent hernia; (*f*) as a matter of fact there are more deaths from Alexander's operation than from ventro-fixa-

tion ; (g) the results of Alexander's operation are often very unsatisfactory, so that either the patients are not benefited or are made worse, or abdominal section must be performed subsequently ; (h) there is no real certainty that the causes which lead to retrodisplacement are removed by Alexander's operation. Mistakes of diagnosis are not rectified ; obscure adhesions and diseases of the appendages are not detected. In short, the operation is uncertain in its results, may be very difficult of performance, and is by no means free from danger. In conclusion, he says that many cases of retroflexion and most cases of retroversion, if uncomplicated, cause little serious disturbance and require no operative treatment ; that severe retroflexion in the virgin, when giving rise to symptoms sufficiently severe to call for treatment, is best relieved by operation ; that cases of retroversion which cannot be made comfortable by simple measures, such as the use of the pessary, are usually obdurate on account of some complication which requires operation ; that, of the operations designed for the cure of retrodisplacements, the only ones worth considering are the Alexander and Adams operations, the various methods of shortening the round ligaments, and ventro-fixation ; there is a legitimate and useful field for Alexander's operation, subject to the following limitations : the uterus must be free, diagnosis must be exact, anatomical conditions must be favorable. When these conditions are not present it is better to make a median abdominal incision and act according to circumstances. After opening the abdomen, if no complications are present, the uterus may best be secured in ante-position, by shortening the round ligaments internally, by placing at each cornu of the uterus one suture, which passes through the abdominal wall. The latter operation may properly be performed instead of Alexander's, if the surgeon prefer it, as it is equally safe and more reliable, on the average.

A. W. Abbott, of Minneapolis, ¹⁰⁵_{Nov. 15, '98} believes that women with retrodisplacements become sterile much earlier in life than women with the uterus in normal position ; abortion, when conception does take place, is the rule, unless the position is rectified before the end of the second month. Ovarian tumors are the sequelæ, not the cause, of retrodisplacements in 33 per cent. of the cases where both conditions co-exist, as shown by Schultze ; it favors procidentia uteri ; at least, prolapse without retrodisplacements is

found in less than $\frac{1}{10}$ of 1 per cent. of prolapsed cases; menorrhagia is the rule, while anæmia and nervous exhaustion are usually present, even when there is no hæmorrhage. The pain is of two distinct types: (a) direct pressure pains,—the low sacral and oblique dragging pains and painful defecation, with constipation almost invariable; (b) the reflex pains, as occipital, temporal, submammary and cardiac neuralgias,—not so invariable as the direct pressure pains, but some one or many of them will be present, in the majority of cases. Gastric and intestinal indigestion, melancholia, and diplopia are also present. Retrodisplacement of the appendages intensifies the direct pressure pains, and may be the cause of the reflexes. This condition is almost invariable; dyspareunia is usual. When peritonitis with adhesions follow retrodisplacements, the above symptoms and conditions are greatly exaggerated and accompanying pathological conditions are more permanent, and the suffering of the patient vastly increased. The symptoms are generally relieved by replacement of the uterus alone, the direct pressure pains gradually, the bearing-down pains very soon, and the backache in from two weeks to two months. The indigestion is rather slow to disappear, while the reflex pains may subside in a few hours. Retrodisplacement without adhesions may be temporarily relieved of symptoms by hot douches, packs, and repair of cervix and perineum. It will recur in time, and from slight exciting causes. In simple cases the uterus may be replaced by the bimanual method, and the Albert Smith pessary inserted, adapted to the pelvis of the patient, and being without pressure. She should be examined the following day, again in a week, and then every two months for six months. The pessary may then be removed for a day; and if the uterus stay in place, examination should be made in three days and at intervals afterward, to make sure that the supports have regained their strength. If the method is not successful, the Emmett repositor should be used. If there is any pelvic tenderness, it is better to hold the uterus in place for a few days with a wool tampon, instead of a pessary. If the fundus of the uterus is retroflected over the pessary, a stem-pessary should be used, the vagina being previously thoroughly cleansed with 1-to-2000 sublimate solution.

Herman,² analyzes four hundred and seven cases of retrodisplacements, and says that chronic pain of some kind is present

in nine-tenths of the cases, most frequent in the back, generally the sacral region. Next come sensations of descent and unilateral pains, mostly in the ovarian region, the left side outnumbering those of the right in proportion of three to one. In a small proportion lower abdominal pain was the chief complaint, and in a very small minority trouble in locomotion was a prominent symptom. Pain in defecation was present in less than half the cases. In the majority of those in which it was present it was accounted for by either constipation or disease of the rectum.

Baker, of Boston, ⁸⁹_{Feb. 22} describes four methods of treatment: 1. Schultze's, in which the fundus of the uterus is carried forcibly upward by means of two fingers in the rectum, the cervix forced backward simultaneously by the thumb in the vagina and with the other hand the fundus is held up against the abdominal wall and worked forward, if possible, a little anterior to its normal position. The Thomas pessary is inserted, and the patient kept in bed a week and treated as if she had undergone a serious operation. 2. Packing of the vagina, which is attended with good results, but requires a long time and great patience; should be intermitted for a few days as often as once a month, at some other time than the menstrual periods, during which time an astringent douche should be used. Electricity can be employed with great advantage in restoring a relaxed condition of the vagina. 3. Treatment by internal massage, using the left forefinger for the left side and the right for the opposite side; should be employed for two to five minutes at the beginning, later eight to ten minutes. Counter-pressure should be used over the abdomen. This treatment may cause strong sexual excitement. 4. Where it is important to treat the case rapidly, and in intractable cases, or those in which vaginal supports are intolerable, abdominal section may be resorted to, with the patient in the Trendelenberg posture. The uterus is drawn forward, and fixed in an exaggerated position to the abdominal wall by passing silk ligatures through the broad ligament close to the uterus. Old adhesions seldom cause any troublesome hæmorrhage. Alexander's operation will be of no service in such cases unless the adhesions are previously overcome.

Ryder, of Malden, Mass., ⁸⁹_{Apr. 20} in discussing ventro-fixation of the uterus for retrodisplacements, states that (1) the operation is applicable to a much wider range of cases than the Alexander;

(2) it is not difficult, and is comparatively without danger; (3) the anchorage is secure; (4) pregnancy is possible and delivery is generally at full term; (5) the rapidity and ease of the operation contrasts favorably with the Alexander, and the mortality is no greater.

Montgomery, of Philadelphia, ¹⁴⁴_{Apr.} states that the uterus may be replaced by introducing two fingers into the vagina, the middle finger passed posterior to the uterus, while the index finger hooks in front of the cervix and presses downward and backward. This procedure acts upon both ends of the lever of the uterus. As the cervix is pressed backward the fundus is necessarily carried forward. In those cases in which there is a marked curve of the sacrum and the fundus is caught beneath the promontory, it may be necessary to seize the cervix with a tenaculum or volsellum, and drag it down while pressure is made against the fundus with the finger. Another effective method of replacing the uterus is to place the patient in the genu-pectoral position and introduce Sims's speculum. The atmospheric pressure dilates the vagina, the uterus is carried upward, and is replaced by dragging upon the cervix with a tenaculum. In those cases in which the uterus is fixed by retro-uterine adhesions, it may be separated by the method suggested by Schultze, which consists in introducing two fingers into the rectum, hooking them over the fundus of the uterus, and dragging the rectum off, the uterus being held taut with the thumb in the vagina against the cervix. If the uterus is bound down by firm adhesions, these may be gradually overcome by the practice of uterine massage, or more rapidly accomplished by opening the abdomen, tearing up the adhesions, bringing the uterus forward, removing the ovaries and tubes if seriously diseased, otherwise permitting them to remain, and fastening the uterus forward by ventrofixation.

D. H. Williams, of Knoxville, ²⁸_{Sept.} advocates treatment by massage and what he calls the uterine-respiratory movement. The latter consists in the following procedure: Patient places herself in the knee-chest position and takes deep, regular inspirations, twelve to fifteen per minute, and afterward assumes a lateral position, knees considerably drawn up and sleep invited. This exercise is repeated in the morning before rising.

Retroflexion.—H. A. Kelly, of Baltimore, ⁶¹_{Sept.} says that no

retroflexion should be treated by a direct operation when associated with a relaxed vaginal outlet, unless the latter be repaired at the same time or as soon after as possible. In some cases it will be proper to lift up the vaginal outlet, entirely neglecting the retroflexion; in other cases the retroflexion and relaxed outlet will be treated at the same sitting. His method of treatment is as follows: Incision two inches long, made in the median line of the abdomen, nearer the symphysis than in ordinary cœliotomy. After incising the peritoneum it is caught at the middle of the incision on either side by a pair of artery-forceps and held outside of the wound, and the forceps dropped upon the abdomen. This insures enough peritoneum remaining after the suspension of the uterus to allow the perfect closure of the abdominal wound. Otherwise the sutures used to suspend the uterus tend to rob this part of the wall of its peritoneum. The finger is then passed down behind the symphysis, over the top of the bladder on the anterior face of the retroflexed uterus, which is hooked and drawn forward into ante-flexion. Two sutures of medium-sized silk are used for the suspension. The abdominal wall on the left side of the incision is hooked up by two fingers until its peritoneal surface is exposed within half an inch; then, with a small, stout, curved needle, a suture is passed so as to grasp about one-fourth inch of the peritoneum and some of the fibres of the rectus muscle. The fundus uteri lying behind the symphysis is exposed by crowding the intestines back with fingers, retractors, or sponges on stalks; the needle is then boldly passed through a portion of the posterior surface of the uterus below the fundus; about the same amount of uterus is included as that taken up on the abdominal wall; the sutures are then drawn through, and finally the peritoneum and part of the rectus caught as on the opposite side of the incision. The suture, drawn taut and tense, brings the uterus snugly up in slight ante-flexion to the abdominal wall, and at the same time approximates the three peritoneal surfaces, the uterus and abdominal wall on both sides, transfixed by the suture. A second suture transfixes the uterine tissue a little below the first, and lifts the uterus a little farther into ante-flexion.

Alexander Operation.—Alexander, of Liverpool, ²⁶₁, says that shortening a round ligament is indicated in retroversion and retroflexion of the uterus. The ligaments must be well drawn out so as

to control the uterus and keep it in its normal position. Suppuration is very exceptional. He uses a single silk-worm-gut suture, put twice through the pillars of the ring, and leaves it there. A variable amount of pain is experienced in the first two or three days. Hernia sometimes occurs, but rarely.

E. T. Thring²⁶⁷_{June 15} claims the following advantages for the Alexander operation in the treatment of malpositions of the uterus: (1) freedom from risk to life; (2) simplicity of the operation; (3) utilization of the supports of the uterus already provided by nature, avoiding any operation which might subsequently prove detrimental to the patient; (4) the permanency of the results in suitably-selected cases, even after parturition.

Pessaries.—John M. Keating⁹_{Jan. 7} advocates aluminium-wire pessaries wrapped with wool, soaked in a solution of 4-to-1000 mercuric chloride, and dried. They should be well greased before being introduced, or they will produce irritation. These pessaries may be permitted to remain four days where there is leucorrhœal discharge, or a week where this is not present. After removal the wool is burned off in a flame, leaving the wire ready for use again. Herzfeld,²_{Aug. 4} reports the case of a woman, 77 years of age, in whom a Breisky egg-pessary had slipped into the uterus and there had become incarcerated. An incision was made in the side of the os, a hole burned in the pessary with Paquelin's cautery, a stout tenaculum fixed in the hole, the pessary drawn down and two more holes burned so that the points of polypus-forceps could be fixed into them. After tedious manipulation the pessary was removed. Its shorter diameter was two and one-fourth inches.

TUMORS.

Fibroma.—Kleinwächter¹⁸_{June 15} states that fibromyomata of the uterus occasionally come to a stand-still at the climacteric, or, indeed, there may even be a diminution of the tumor, possibly due to the use of ergot. Tumors which, in the course of pregnancy, grow rapidly diminish with puerperal involution. There is great danger of malignant degeneration of these tumors at the menopause.

Moschuna⁶⁷³_{Jan.} reports seven cases in which the physical examination, as well as sphygmographic traces, showed that uterine fibromyomata occurred in women affected by generalized arteriosclerosis, and questions whether there may not be a relation of

cause and effect between arterial dystrophy and uterine tumor. (Report of Corr. Editor Kiriak, Bucharest.)

Robert Boxall, of Middlesex, ¹⁰⁷⁷_{Feb. 1} gives as symptoms of fibroid tumors hæmorrhage and leucorrhœal discharge. The hæmorrhage usually occurs in the form of menorrhagia rather than metrorrhagia. A large subperitoneal fibroid may produce no discharge, while a very small growth situated beneath the mucous membrane may be accompanied by a profuse leucorrhœal discharge and excessive hæmorrhage. Bearing down, frequent micturition or retention are the results of pressure, as are constipation, varicose veins and œdema of the lower extremities. Pressure upon the nerves may cause cramps and neuralgic pains; the ureter may be pressed upon and induce hydronephrosis; in large tumors the diaphragm may be pressed upward, interfering with the heart's action. It is generally supposed that fibroids do not produce ill effects until the age of 30, but Boxall reports a case 23 years of age, in which the fibroids were of considerable size and endangered life by profuse hæmorrhage. Fibroids are generally not painful unless they have become inflamed, but during the expulsion of a polypus pain similar to that of a miscarriage is sometimes experienced. If swelling of the abdomen increase just before the menstrual period and diminishes during it, it is certain that a fibroid is present. Fibroids are apt to produce sterility, but if a woman become pregnant they increase the probability of premature labor or abortion, especially if imbedded in the uterine wall and accompanied by endometritis. They do not, however, always interrupt pregnancy, as a woman with a large fibroid may go on to full term.

Charles W. Adams, ¹⁹_{May}, makes the following propositions, founded on his experience in the therapeutic treatment of uterine fibroids: that myofibroma of the uterus can be benefited either by operation or treatment; that for myofibrocytic tumor there is only one method of cure, and that operative; that the effective methods of treatment of myofibromata are palliative, medicinally curative, electrical, operative; that certain cases of myofibromata can be and are benefited and rendered entirely inert by the use of properly-selected therapeutic agents; that the class of myofibromata benefited by therapeutic agents are those in which the muscular tissue largely predominates; these latter are almost always reduced in

plugged at once with 20-per-cent. iodoform gauze and left untouched for days, even a week, carefully watching the temperature and pulse. If there is much damage to the uterine wall or to the internal os and much oozing, the surface should be touched with solid perchloride of iron, washing the clot freely away and plugging the cavity with strips of lint soaked in tincture of iodine. If the vagina is not plugged, the nurse should douche every two or three hours for the first two days, and then three or four times in twenty-four hours until the discharge ceases. The patient should be kept in bed for ten days. If these means are inefficient, removal of the ovaries will bring about the cessation of menstruation and periodical congestion. In the majority of the author's cases the cure has been not only rapid, but complete; in some slow and accompanied by occasional troublesome hæmorrhage. The mortality was just over 4 per cent., and, he believes, entirely due to the accidental puncture of large vessels in the pedicle with subsequent thrombosis or embolism. This operation is most applicable to those general enlargements of one or other uterine wall forming a smooth, rather oval tumor, varying in size from that of a foetal to an adult head. In performing the operation, the ligatures must, when tied, not only leave room for the complete removal of the ovary, but they must do so without such undue shortening of the stump as to endanger slipping and hæmorrhage. Supra-vaginal hysterectomy with extra-peritoneal treatment of the stump may also be performed. One or both ovaries may be left. This Thornton thinks preferable, as it causes less inconvenience from the troubles attending the sudden and artificial production of change of life.

J. M. Baldy, of Philadelphia,¹¹²_{Dec., '92} lays down the following laws: (1) all rapidly-growing fibroid tumors in young women before 35 should be removed, and many of the same kind as late as 40 years of age; (2) all cases in women under 40 years where there is such loss of blood as to enfeeble the general health and which is not readily controlled by treatment; (3) all cases under 40 years in which there are frequent, recurring attacks of peritonitis; (4) cases which have gone several years past the menopause, with excessive, uncontrollable bleeding or recurrent attacks of peritonitis. Herman, of London,¹⁰⁷⁷_{Mar. 16} says that there are two varieties of fibroid,—the white hard and the red soft fibroid. The first is composed of concentric fibroids, multiple and encapsuled;

the second is not. Lawson Tait has pointed out that the red soft class keep on growing after the menopause. They are spoken of according to their site, as subperitoneal, interstitial, or submucous. As only the latter two produce uterine hæmorrhage, it is only with them that we need concern ourselves. The tumor may be removed by one of three natural ways: 1. By absorption. We do not know why it occurs, but it takes place very rarely. 2. By expulsion. A submucous tumor becomes pediculated, and passes into the uterine cavity, where it produces by its presence uterine contractions, which expel it, first, into the cervix and then into the vagina. 3. Disintegration. The tumor is expelled in the form of loose, fibrous *débris*. There are four modes of treatment: (1) by drugs; (2) removal of the fibroids; (3) artificial induction of the menopause; (4) acting on the bleeding surface. The drugs most efficient are ergot, hamamelis, and hydrastis. Of these, the former is the best, and may be given hypodermatically or by the mouth; it should be continued over a long period of time. The ergot acts on the smooth muscular fibres, and produces contraction of the muscle and of the arteries. It sometimes increases hæmorrhage, by forcing the tumor toward the uterine cavity, and thus produces a stretching of the blood-vessels over it. Hamamelis has sometimes given good results in doses of 10 minims (0.65 gramme) three times a day. Removal of the tumor is the best treatment, when it can be done, as we thus get rid of the disease; it depends on the size and site of the tumor. When the tumor projects into the vagina, it can be twisted off or the pedicle cut through. If larger than an orange, the wire *écraseur* is necessary to remove it; if it be still larger, we may be unable to get the *écraseur* over it. When the tumor presents at the os uteri, if not larger than a foetal head, the cervix should be incised, and ergot given to force it into the vagina, when it can be treated as above or cut up and removed piecemeal. When the tumor is *in utero*, it is necessary to dilate the cervix and explore the uterus. This is preferably done by means of tents, rather than rapidly by dilators. Enucleation has been practiced in quite-large tumors. Péan states that it can be done in tumors as large as a foetal head. The essential points in the operation are: (1) the fullest possible dilatation of the cervix; (2) cutting the tumor up into little bits, and thus bringing it away a little at a time; (3) the utmost care as to anti-

sepsis; (4) the removal of the ovaries, so as to induce artificial menopause; (5) by acting on the mucous membrane.

H. J. Boldt, of New York, ¹_{Jan. 10} advocates galvanism in some cases of uterine fibromyomata as a palliative measure. He prefers myomectomy to hysterectomy, where possible, and says the total removal of the organ is preferable to the partial, unless the patient is very feeble. The intra-peritoneal treatment of the stump is preferable to the extra-peritoneal, and should be accomplished as rapidly as possible in all cases. If the pelvic floor is extremely rigid, the operation should be begun from the vagina by incisions made before and behind the uterus and the uterine arteries ligated. If the line of union between the peritoneal cavity and the bladder and that which covered the uterus is not visible, the bladder should be distended with a warm solution of boric acid.

Bouilly ⁷³_{Apr. 8}, ⁹⁶_{Sept.} states that conditions may exist where tubo-ovarian castration is to be preferred. The main indications are: 1. Hæmorrhages, menorrhagic in character, with the usual menstrual flow prolonged or dangerously increased, or with abnormal frequency, but still regular. 2. Severe pain, either constant or paroxysmal, especially increased during menstruation. 3. Feebleness, owing to anæmia or cachexia, rendering the woman unable to stand the shock of a more-prolonged and difficult operation. As to the method of treating the uterine pedicle, Chaput considers it essential (1) to check hæmorrhage; (2) to disinfect the uterine canal; (3) to fix the pedicle behind the abdominal wall.

Sinclair, of Aberdeen, ⁴⁹_{Nov.} replying to objections to intra-peritoneal myomotomy, states that immediate hæmorrhage can be controlled as effectively as in the amputation of a limb, even although the preliminary elastic tube, as applied by Schroeder and his imitators, be not brought into use; and as for remote hæmorrhage, owing to shrinkage of tissues, cutting through of ligatures and sutures, and so on, they are all *a priori* objections and contradicted by experience. The danger of infection from the open cervical canal he regards as an objection unsupported by facts. Danger to the ureters depends upon the operator, and is not so great as in the extra-peritoneal method, which threatens bladder and intestines, and frequently does harm by tension. Among the real objections are the following: the operation entails more immediate loss of blood than the extra-peritoneal method. This

difference, however, will be very slight if the bleeding-points are quickly caught up in making flaps. Many of the drawbacks may be overcome by careful protection of the field of operation and application of warmth to the patient. A larger amount of suture material is left in the stump, and may cause prolonged drainage, while sutures may be discharged at intervals for months.

X. O. Werder, of Pittsburgh,²⁷ reports the case of a woman, 29 years of age, who had a large subperitoneal fibroid with a short, thick pedicle, which was treated extra-peritoneally, by the elastic ligature. Returning home, about eight or nine weeks after the operation, pregnancy took place, and progressed favorably until the end of the fourth month, when hæmorrhages occurred from the abdominal fistula, and recurred at irregular intervals, more or less profuse, causing much anæmia. After delivery of the child, the placenta was found adherent immediately under the abdominal fistula, the uterine wall being absent over a considerable space. The placenta had formed adhesions with the abdominal wall itself. Patient recovered, and the fistula closed.

Verneuil,¹⁴ combats the assertion that operation is the only treatment for every growth, however small. Such growths are exceedingly common, and in many may produce no abnormal symptoms. Those, however, which, through ignorance or negligence of the patients, become very grave, require surgical intervention; others should be subjected to treatment by ergot, rest, and electricity.

Richelot,⁴⁸ says that enucleation may be done by abdominal section with independent suture, but that it does not compare favorably with the perfect methods of hysterectomy. Vaginal enucleation is much more frequently performed. In many cases it is an easy operation, and very suitable for small growths. Large tumors within the uterus may be removed piecemeal, and hæmorrhage prevented by iodoform-gauze packing. Of thirty-four vaginal hysterectomies for fibroid, he has lost but one patient. In 1890 he reported sixteen abdominal hysterectomies, with three deaths. He now raises up the tumor and ties the ovarian arteries with silk; after dissecting up the cervix he throws around it an elastic ligature, which is left and covered with a flap of peritoneum from the anterior surface. He had operated upon twenty-one cases by this method, with but one death.

James Murphy,² in the accompanying diagram, shows the method of removing vaginal myoma piecemeal. This was a tumor which would have been impossible to remove by abdominal section and extra-peritoneal clamp. The method here pursued removed the tumor without opening the peritoneal cavity.

Condamin,² advocates chloride of zinc in preference to hysterectomy. He applies crayons, consisting of one part of zinc to

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three of rye-flour, carried well into the uterine cavity, taking care that the cervix be not cauterized. The latter is then plugged with iodoform gauze and the patient placed on her face for three or four hours. Severe pain is often experienced for twenty-four hours. The temperature sometimes rises to 104° F. (40° C.); the patient must be kept in bed for a week or ten days. Cauterized tissues begin to come away about the twelfth day. If scanty, a smaller crayon should be inserted with similar precautions. Twenty cases

have been treated in this way, but he admits that, although the symptoms have not all improved, more time must elapse before any conclusions can be drawn as to its value.

G. R. Fernandez, of Lisbon,¹⁴ reports a case of pregnancy in a woman who had two fibroids in the uterus, the one five inches, the other three inches, in diameter, both occupying the inferior part of the organ and preventing access from the vagina. He performed a Porro operation, with internal treatment of the pedicle. The patient recovered.

Cystomyoma.—Alban Doran² reported a case of cystic myoma of twelve years' duration, springing from the right side of the uterus, which had dissected up the pelvic peritoneum. The cæcum lay on the uppermost part of the tumor. The right round ligament was greatly elongated, so as to resemble a ureter. The right Fallopian tube and ovary were undisturbed. The operation was done in 1892, and the patient was alive and well in April, 1893. He says that the development of cystic myoma is attributed (1) to breaking down of solid tissue from fatty or mucoid degeneration or from local necrosis; (2) dilatation of blood-vessels or blood-sinuses; (3) dilatation of lymph-channels. The use of the uterine sound in such cases is dangerous, as is also tapping; the latter on account of the rigidity of the cyst-walls and their general vascularity. Cystic fibroids demand operation more urgently than do ordinary growths, for the reason that they do not diminish after the menopause, and often by their rapid increase may destroy life.

Carcinoma.—Janvrin¹ discusses the palliative treatment of cancer of the uterus and its adnexa not amenable to radical operations. Local treatment should consist of very thorough and vigorous use of the sharp curette, making it puncture deep into the base of the infiltration, opening through the *cul-de-sac* into the peritoneal cavity; an antiseptic sponge, with thread attached, should be placed so as to prevent the descent of the intestines during the operation. Hæmorrhage is usually free, but can be controlled with hot douche or saturated solution of tannin, the application of cautery, or, in obstinate cases, tamponing of the vagina. After all oozing has ceased and the parts are wiped dry, the raw surfaces are covered with pledgets of absorbent cotton squeezed out of a 50-per-cent. solution of chloride of zinc, the intestines being covered by packing of iodoform gauze. Dressing

is removed in twenty-four hours and the cavity washed out with 1-to-5000 bichloride solution, thoroughly dried, and freely dusted with powdered iodoform. The sloughs of the chloride of zinc usually give way at the end of a week.

W. E. Porter, of New York, ¹_{Dec. 17, '92} in a paper on malignant diseases of the uterus, concludes as follows: (1) a knowledge of the gross and microscopical appearances of the malignant growths of the uterus is essential to their proper diagnosis and operative treatment; (2) a thorough knowledge of the symptomatology, especially in the earlier stages, should be acquired and the slightest existing carcinoma should demand immediate physical examination and consultation with the surgeon; (3) a microscopical examination should be made of any tissue simulating malignancy; (4) the entire uterus should be removed in every case of malignant disease where evidences of the growth are confined to the uterus, and the sooner the operation is performed the greater are the chances of immediate success and ultimate cure; (5) vaginal hysterectomy is the operation which should be resorted to in all cases where the uterus is small enough to be removed per vagina, and in its performance ligatures should be applied to the larger vessels, to the exclusion of clamps; (6) in removing large tumors by abdominal hysterectomy, the *écraseur* should be applied and the bulk of the tumor removed before the ligatures are applied; (7) laparo-vaginal hysterectomy should be performed where serious complications in the way of pelvic inflammation and adhesions exist; (8) the operations suggested by Zuckerkandl and Kraske, on account of their formidable character, should be performed only in exceptional cases, if at all; (9) where the disease has extended to the parametrium or extensively into the vaginal vault, in no case should hysterectomy be resorted to; (10) high amputation should be performed only as a palliative measure; (11) in curettement for cancer of the uterus a sharp curette should be employed; (12) after all operations for malignant disease the patient should be kept under observation for as long a period as possible.

Landau, ⁴_{July 8} regards total extirpation of the carcinomatous uterus as indicated, even though we cannot decide the extent of the disease, when it is still confined to the uterus. A small nodule may rapidly extend and spread, while a large mass may be entirely

removed, showing it to be altogether local. In the extension of the growth to the vagina, the infection of the anterior wall is much less favorable for operation than either the posterior or lateral walls, since there is here a thin layer of para-vaginal connective tissue which forms, at the same time, the submucous tissue of the bladder. In the separation of the anterior wall injury of the bladder may result, requiring unavoidable resection and suture of the bladder; for this reason involvement of the anterior wall would be considered a contra-indication to extirpation. In the lateral or posterior wall, the entire vaginal wall may be resected; consequently the extent of the cancer on the posterior wall is a disturbing complication, but not necessarily an obstruction. Infiltration of the parametrium is no obstacle, as, after separation of the uterus, the application of the clamps causes considerable material to slough away; then, besides, the infiltration in the connective tissue is not always malignant, but often purely inflammatory, often dependent upon inflammatory processes in the appendages.

F. B. Jessett, of Brompton, ⁶_{Dec. 24, '92} reports twenty-five cases of supra-vaginal amputation of the cervix uteri for cancer, and says that Gusserow gives a mortality, after supra-vaginal amputation, when performed with the knife, of 9.09 per cent., and, with the galvano-cautery, of 7.75 per cent. Post, ²⁷_{Nov., '97} in seven hundred cases of vaginal hysterectomy, gives a mortality of 24 per cent.; Martin gives his mortality of vaginal hysterectomy 16.6 per cent.; Leopold and Sanger give mortality as low as 6.2 and 8.3 per cent., respectively. In the twenty-five cases noted two deaths occurred, making a mortality of 8 per cent. The writer has had twenty-one cases of vaginal hysterectomy with one death,—a mortality of less than 5 per cent. A. H. N. Lewers ²_{Dec. 17, '92} gives the indications and contra-indications for cancer of the cervix, and advocates examination under an anæsthetic in doubtful cases. None of his cases succumbed to the operation. He lays stress (*a*) on the importance of preliminary incisions for clearing the cervix, as far as possible, from the diseased tissue; (*b*) on the importance of removing the cervix in anatomically complete condition at the level of the internal os uteri; (*c*) on the little risk involved in opening Douglas's pouch during the operation; and, lastly, (*d*) on the apparent value of applying the cautery freely to the bed from which the cervix

had been dissected out, and cutting off the cervix from the body after it had been cleared with a cautery rather than with the knife or scissors. The author performed nineteen operations.

Houzel, of Boulogne-sur-Mer, ⁵⁵_{Oct. 29, '72} believes that when cancer of the uterus has advanced too far to justify total vaginal hysterectomy surgical treatment is still indicated, as there is no risk to the patients, but relief of symptoms and complications, with the illusion of recovery. By obstruction of the natural evolution of the disease a respite is given, perhaps, for more than a year. Palliative operations have been practiced largely with bistoury, curette, scissors, exceptionally with hot iron, which is often used as a complement. Lanphear ⁷²_{Sept.} advocates, in far-advanced cases, scraping and cutting away as much of the diseased tissue as possible with the curette, packing with iodoform gauze, and the subsequent use of pyoktanin applied over the surface by an insufflator. Bidlot, of Liège, ¹⁵⁴_{Mar. 1} reports the case of a patient suffering from symptoms of cancer of the uterus for five years, for which different plans of treatment had been employed without advantage. The patient was enfeebled and emaciated, and while in this condition was exposed to erysipelas. After a severe attack, from which she recovered slowly, the uterine symptoms began to disappear and she continued in good health for two years. The symptoms of disease of the uterus re-appeared and the condition again became grave. It was then decided to inoculate her with erysipelas, and while preparation was being made for this she had an attack of severe bronchitis, for which croton-oil inunctions were made. This resulted in an attack of erysipelas, which extended over her body, and following it there was a disappearance of the malignant symptoms for over two years. A point of interest in the case is that the erysipelas did not locally affect the site of the disease and impeded its farther progress.

Routh, of London, ²²_{Nov. 24} says that cancer of the uterus springs either from the epithelium covering the membrane or from that lining its glands. Epitheliomata springing from the epithelium of the vaginal portion of the uterus are of the squamous epithelial type, while those beginning in the glands of the cervix or body are of the columnar or cylindrical type. Adenoma of the uterus is a common disease during active sensual life and rarely remains benign for long, for a portion of the new growth takes on a

malignant character near some of the epithelial lining and a sinus proliferates into the interglandular substance. Adenoma chiefly affects the glands in the cervix, but the tubular glands of the body are not infrequently starting-points. The terms scirrhus, encephaloid, and epithelioma are misleading, as almost every specimen, except where the process begins in the squamous epithelium of the vaginal portion, is a columnar, tubular-celled, or glandular epithelioma. The seat of origin is of importance. Cancers beginning in the striated epithelium covering the vaginal portion travel down the vaginal mucous membrane and do not involve the connective tissue until late, and may linger on from two to three years, perhaps involving both bladder and rectum before death ensues. A mixed squamous and columnar epithelioma originates not uncommonly in the external os, being a point where a junction of the external type of epithelioma meets with that type common to internal cavities. An epithelioma beginning at the external os tends to spread up into the cervix and down into the vagina. Epithelioma commencing in the epithelium lining of the cervix may spread a little upward into the body of the uterus, but as a rule rapidly ulcerates, often hollowing out the vaginal portion or leaving a cone-shaped, ulcerating cavity into which the finger readily dips. Epithelioma beginning in the glands of the cervix is always accompanied with adenoma, causing enlargement of the whole cervix and finally a sprouting, friable mass which may either assume the so-called cauliflower form or the mushroom shape. Early cases of endocervical adenoma cause nodular protuberances through the surface of the vaginal portion, not unlike distension cysts. Cervical cancer rarely spreads along the vagina, but mainly into the cellular tissue around, along the folds of Douglas and the broad ligaments. Carcinoma of the body of the uterus grows from its lining membrane and that of its glands, and tends to spread outward to the peritoneum, which forms adhesions to the intestines, or more rarely it may involve the Fallopian tubes. Sarcomata springing from connective-tissue elements, not from epithelial, are comparatively rare, and are clinically indistinguishable from carcinomata.

Miscellaneous Growths.—L. Schooler, of Des Moines, Iowa, ¹⁹_{Apr. 18} states that uterine fungosities may be malignant or benign, most frequently the latter. They generally are little more than simple

exuberant vegetations which may or may not be complicated by the existence of polypi. A prolific cause of their growth is, in no doubt the majority of cases, abortions and miscarriages. Where they are found they must be destroyed or removed. The proper plan of treatment is the use of the curette, dilating the uterus and scraping away the growth. This should, of course, be done under antiseptic precautions.

J. Price, of Philadelphia, ¹_{Oct. 29, '92} advocates the removal of small, hard tumors in the pelvis, saying that they interfere with conception, and often with delivery. A dermoid on one side may cause abortion after abortion, while the other side is healthy. Fibroid tumors of the uterus occur more frequently, in his experience, in white than in colored women, and dermoids are more likely to undergo dangerous degeneration than formerly. The greater the size of the tumor, the longer the incision and operation required. Large tumors often have extensive adhesions to the bowel, omentum, and parietal peritoneum. He advocates the extra-peritoneal method of treating the stump after hysterectomy.

Thomas C. Smith, of Washington, ²⁷_{Apr.} reports a case of sarcoma of the uterus in a child 3 years of age. Operation was done for its removal, but the patient died thirty-three days later.

HYSTERECTOMY.

Henry T. Byford, of Chicago, ⁶¹_{Sept. 2} gives the following causes for failure in hysterectomy: (1) unsuitable cases for operation; (2) imperfection in the technique; (3) mistakes in the after-treatment. Operation should not be performed if the disease is so far advanced that it is quite certain to return. He has used ligatures exclusively 24 times, with one death; forceps exclusively in 9 cases, with no death; forceps and ligatures on the stumps in 7 cases, with no death; forceps in stumps and catgut in vagina in connective tissue in 4 cases, with no death; ligatures to stumps and forceps in vagina in 1 case, with recovery. He usually separates the bladder before making the posterior incision; usually ligates or clamps from below up, and sometimes retroverts the uterus and puts forceps on the peritoneal end of the broad ligament. Hæmorrhage must be prevented, and proper care taken of the peritoncum. The uterus taken away forms a gap in the peritoneal cavity between the stumps, into which a knuckle of

intestine is apt to fall. The stumps will slough or, at least, the ligatures will become infected; hence the great problem is to prevent infection in the peritoneal cavity and septic peritonitis. All *débris* is to be removed from the peritoneal cavity, first by sponges, and if the uterus be septic it should be washed out by a stream of sterilized water. To prevent the intestines becoming adherent, the omentum should be drawn forward and tucked around a knuckle of the intestine. If ligature be used on the stumps, the latter can be drawn together and sewed, fixing them extra-peritoneally. It adds to the safety of the patient to catch the anterior and posterior cut edges of the peritoneum and stitch them respectively to their anterior and posterior vaginal edges. The vagina should always be tamponed with iodoform gauze in case the peritoneum cannot be shut off above, the tampon being placed against the omentum above, only high enough to drain the stumps, never projecting above them. If the gauze has not been placed too high, it can remain from four to five days without causing irritation or any rise of temperature. Six or eight hours after the gauze has been removed, a plain douche should be given without force and with the return-tube placed beside the syringe-point.

Eastman, of Indianapolis,⁵⁶ prepares the patient by repeated vaginal irrigations, using large quantities of soft water and soft soap, made of potash and olive-oil; scrubs the vagina with a mop made of coarse gauze and next with a brush; follows these irrigations with soft warm water. During the time of operation the cervix is cauterized freely through the vaginal os with an iron heated in the fire, then packed with a bit of gauze saturated in a solution of persulphate of iron. The external os is stitched up with three or more stitches, so arranged as to secure inversion of the lips. In malignant disease, these precautions are insufficient. He then cures the uterus and continues the antiseptic irrigation for at least one week. Under an anæsthetic the curette is used to remove all necrotic tissue as thoroughly as possible; hot-water irrigations are employed, and the cervix and fundus packed with gauze saturated with Churchill's tincture of iodine. The upper portion of the vagina is scrubbed with the same solution and packed with cotton, which is removed in two days, or sooner if necessary. The irrigations are continued for a week or ten days, during which time the patient is given full doses of strychnine or nux vomica, com-

bined with iron. The bladder is then emptied, the parts in the region of the urethra carefully mopped and seized with two tenacula, one catching the cervix and the other the mucous membrane in front of it, assistants holding these instruments. Then with scissors curved on the flat a semicircular incision is made through the mucous membrane, the dissection continued with tenaculum scissors between the bladder and the uterus until the peritoneal cavity is opened. The serous membrane is brought down over the bladder and stitched to the mucous margin. The angles of the incision are widened as far as the broad ligament. In this angle a stitch is taken, which holds the serous to the mucous membrane. A large flat sponge, with ligature attached, is carried through into the abdominal cavity and left there to protect the intestines and omentum from atmospheric contact. The Douglas *cul-de-sac* is then opened by an incision, the angles of which are united with those which have just been stitched. This leaves the uterus attached by its broad ligaments. A strong ligature is then carried around the broad ligaments with a blunt-hooked needle, the point of which is kept close to the uterus while it is inserted. The needle is withdrawn and the ligature tied. This brings the broad ligament to a round mass. A staff grooved on its concave surface is then passed through the anterior incision, following the track of the ligature, its point merging in the posterior incision. By this staff the narrow, rounded, broad ligament in the uterus is brought down where a single clamp may be applied in a safe and definite way, or the ligaments may be transfixed with three or four ligatures without, repeatedly introducing the fingers to keep the needle from catching up what is not wanted.

Chaput² advocates a short abdominal wound, into which he introduces a sterilized rubber tube half an inch in diameter. This is passed down into the vagina; its upper end is held in place by a safety-pin and surrounded by iodoform dressings. By means of the irrigator the vagina can be readily washed through the abdominal tube. Dressing can be done a few hours after the operation. Tube must have no lateral openings. It does no damage passing through the peritoneal cavity; indeed, it prevents prolapse of the intestines into the vagina and sets up a somewhat salutary adhesive inflammation. Its main advantages are: 1. It allows of repeated irrigation, most necessary after vaginal hysterectomy. 2. The site

of the operation cannot be cleaned from the vaginal side during the first two days; so that the patient runs risks from pent-up discharge and iodoform poisoning. Vaginal irrigation, moreover, may cause the peritoneum to be infected by germs from the vulva if great precautions be not taken. This often discourages the surgeon from washing the vagina thoroughly. 3. Irrigation from above through the tube can be commenced on the first day, and involves no risk of fluid entering the peritoneum. Should fever set in, continuous irrigation may be established through the tube. He had six cases, all of which recovered, five without fever.

Eastman⁵⁸_{Dec. 31, '92} says the ideal hysterectomy patterns after the operation of the amputation of the thigh. After tying the broad ligaments and cutting the threads, three suitable flaps are made high up in the tumor, the arteries being then ligated separately, including every bleeding-point. As it is often impossible to ligate the uterine arteries without constricting muscular tissue, the ligatures should be left long and carried down through Douglas's pouch and out through the vagina or through the dilated cervical canal, then bringing the peritoneal flaps—both anterior and posterior—together by delicate suture, so that there may be primary union of the serous membranes similar to the union of the skin in the thigh amputation. The long ligature carried into the vagina furnishes capillary drainage from the severed and constricted tissue, as the drainage-tube conveys serum from the stump of the amputated thigh in the region of the bone.

F. B. Jessett, of Brompton,²²_{Mar. 9} says that the immediate mortality after total extirpation of the uterus by Continental surgeons is reported to have decreased to about 10.5 per cent. as a general average, while certain operators claim to have reached a death-rate as low as 3 or 4 per cent.; but he doubts these records for the reason that they are in the habit of mixing up cases that are non-malignant. Among some of the dangers of total extirpation of the uterus may be mentioned intestinal obstruction, the result of adhesion of a loop of intestine to the wound caused by the removal of the uterus. Another danger is that of including the ureter in the ligature in cases in which the disease has extended laterally. Vesico-vaginal or recto-vaginal fistula are by no means so rare as might be supposed, and are especially liable to occur in those cases in which the disease is extensive. It may not declare

itself for some days after the operation. Another source of danger is peritonitis. Sepsis is answerable for a number of deaths.

H. J. Boldt, of New York, ²³_{Nov., '92} reports vaginal extirpation of the uterus in forty-four cases with three deaths. He performs the operation as follows: The bowels are thoroughly emptied on the day prior to the operation and a warm bath given, if possible, before operation; the symphysis and external genitals are shaved; the lower part of the abdomen, thighs, buttocks, external genitals, and vagina are thoroughly scrubbed with a 10-per-cent. solution—Mollin soap; then 1-to-1000 corrosive-sublimate solution; after which the external genitals are washed with ether, subsequently with alcohol, and, finally, sublimate solution. The vagina is wiped out or thoroughly irrigated with plain water. The surroundings of the vulva are guarded with towels wrung out of 1-to-1000 sublimate or a 5-per-cent. carbolic-acid solution, and changed for clean ones when occasion demands. In cancer of the portio and cervix such portions as readily break down are removed by scissors and sharp curette. The volsella forceps are used to pull the uterus down. If there is no structure that can be grasped by the volsella forceps, the vagina surrounding the cervix is grasped anteriorly with one or two bullet-forceps half an inch or farther from the margin, and an incision made as far away from the vagino-cervical boundary as thought necessary to resect the vagina. The mucosa is stripped down and the bladder stripped off a short distance until a volsella can be readily used. He prefers to open the Douglas pouch, as he can more easily, with the index finger, guide the needle in suturing the base of the broad ligaments. After opening the *cul-de-sac*, the peritoneum is stitched to the vagina by a running catgut suture. After a ligature is placed the tissues are cut, which renders the uterus more and more movable; and if one side of the parametrium is thickened, it should be first freed. When the base of the broad ligaments is ligatured and cut there is no trouble in stripping off the bladder entirely upward and sideways, when the peritoneum is at once secured to the anterior edge of the vagina by a running suture of No. 2 or 3 catgut. The ligated portions of the broad ligament are drawn down and secured by sutures in such a way that the stumps are placed completely extra-peritoneally. This also aids in preventing the ligatures from slipping. In cancer of the body he

invariably removes the adnexa on account of the danger of carcinoma being already present. In cancer of the portio or cervix he prefers to leave them unless they are diseased. After removal of the uterus the iodoform-gauze tampon or sponge, which has been placed intra-peritoneally to prevent the intestines and omentum from prolapsing, is removed and the cavity irrigated with a stream of warm water, the stumps of the broad ligament drawn down by bullet-forceps to give a clear view, and then by a full-curved needle, passed anteriorly through the vagino-peritoneal margin, and emerging posteriorly in the same way, they are secured. The opening in the vagina is closed by two or three sutures and another suture from one broad ligament to the other and tied, and a small strip of iodoform gauze is introduced. Patients so operated on are dismissed at the end of ten days. Where the uterus cannot be displaced downward, he dissects the bladder off anteriorly and places a clamp upon the base of the broad ligament the required distance away from the cervix, and cuts the parametria close to the inner border of the clamp. This is done on each side. The bladder is then entirely separated from the cervix, and the remaining portion of the broad ligament included in the next clamp applied. Any bleeding-points still found are secured by smaller hæmostats. Handles of all forceps are securely tied with silk to prevent them springing open suddenly. The vagina is lightly packed with iodoform gauze, a strip of it carried around the forceps to prevent pressure on the soft parts, and a heavy pad of absorbent cotton is secured to the vulva by a T-bandage. The clamps may be removed in twenty-four to thirty hours. His only reason for not using clamps is that he thinks the convalescence is longer, and he prefers to close the wound. He uses catgut in preference to the silk ligatures.

W. F. McNutt, of San Francisco, ⁷⁷_{Apr.} reports a case of vaginal hysterectomy for cancer of the pregnant uterus. He succeeded in turning the uterus backward and bringing the fundus down, after which it filled the vagina so completely that he was unable to either ligate or clamp. He then split the uterus, when the foetus escaped and the uterus was readily flattened and compressed, giving room for the application of the clamps. He had previously reported five successful vaginal hysterectomies for malignant disease.

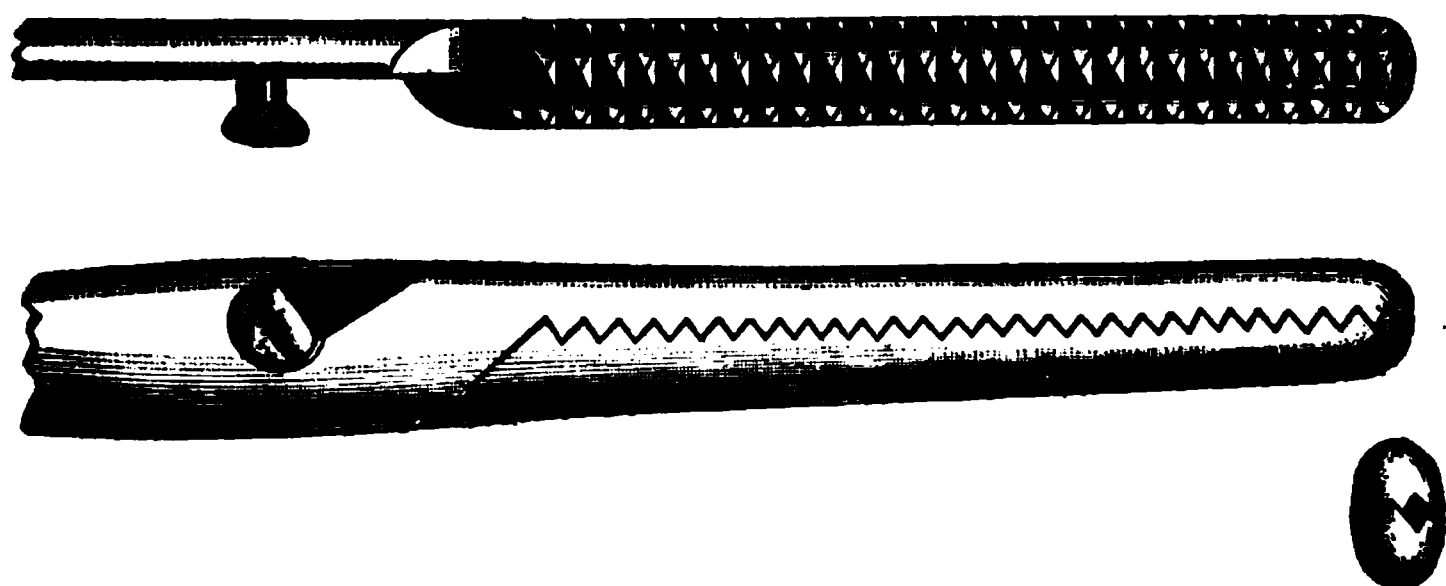
Cullingworth,²_{Jan. 14} gives the history of three patients upon whom vaginal hysterectomy had been performed. One lived for two years and two months, one a little short of two years, and a third a little over seventeen months. In each of these cases death resulted from intestinal obstruction. Cause unknown.

Abdominal Hysterectomy.—Delagénière⁸⁰_{Aug. 16} says that laparotomy is superior to vaginal hysterectomy in cases of pelvic suppuration because it is not so grave an operation, the final results are as good, and the inconvenience of the abdominal cicatrice is much less important than the dangers of opening the bladder in hysterectomy. In simple cases of pyosalpingitis the results are most excellent after laparotomy, but in the very complicated cases hysterectomy is the more suitable. R. B. Hall, of Cincinnati,⁵³_{Dec. 24, '93} advocates the entire removal of the uterus in hysterectomy, for the following reasons: 1. There is no pedicle to become necrotic, and thereby a source of septic infection, and no fatal hæmorrhage if the intra-peritoneal method is employed. 2. There is no more danger from hæmorrhage than after ovariectomy. 3. There is no raw surface left in the peritoneal cavity to favor intestinal and omental attachments. 4. It is no more difficult than many other abdominal and pelvic operations, and requires no more time to do it.

Guermonprez and Duval, of Lille,²⁶_{Aug. 1} advocate the following method of abdominal hysterectomy: A central abdominal incision was made from a point just above the pubes to a point almost midway between the umbilicus and xiphoid. The upper part of the broad ligaments on each side were divided, bleeding being checked by means of pressure-forceps and ligature. The division of the remnant stopped short of the uterine arteries. The peritoneum on the anterior surface of the uterus was cut transversely at the level of the uterine pouch and the bladder separated from the uterus by the fingers until the vaginal portion of the cervix could be felt. A button-hole opening was made in the vagina and a director passed through this, across the vagina, and pushed through into Douglas's pouch. By means of these button-hole openings, pressure-forceps were put on the base of both broad ligaments and the uterus removed. After this the broad ligaments were with much trouble secured with silk ligatures and the pressure-forceps taken off, the peritoneum washed out with distilled warm water, and the wound closed.

Sacral Resection.—Herzfeld,⁵⁷ advocates removal of the uterus by sacral resection (a) in extraordinary size of the uterine body and increased difficulty of operation by the vaginal method; (b) in carcinoma of the uterine body, where infection of the abdominal cavity does not take place; (c) in carcinoma, where the disease has extended to the vagina or the parametrium.

Vaginal Ligation of Pelvic Arteries.—Franklin H. Martin, of Chicago,²⁷ describes an operation for uterine tumors or hæmorrhage which consists of a curved incision, an inch and a half to two inches long, over the broad ligament and at right angles to it. By two index fingers the vaginal tissue is separated from the broad ligament, and the broad ligament in front from the bladder for a height of two inches, and laterally for nearly the same distance. By this course the bladder is preserved from injury and the ureters



CROCODILE-TEETH FORCEPS. (CHAPUT.)
Bulletin de la Société Obstétricale.

forced out of reach. The base of the broad ligament is grasped by the curved pedicle-needle, a No. 12 braided-silk ligature is passed beyond all pulsating vessels and made to penetrate the broad ligament, the ligament drawn through, the needle removed, and the base of the broad ligament firmly tied an inch or more away from the uterus. The ligature is cut short and the opposite side is treated in the same manner, the vagina irrigated with bichloride solution, and then the vaginal incisions are accurately approximated with fine catgut, completely burying the silk.

Chaput¹⁹⁴ presents a pair of crocodile-teeth forceps, the blade measuring six centimetres in length, six millimetres in breadth. Each blade has three rows of pointed teeth, very short, not measuring over two millimetres. These reciprocate, the one blade with the other, but the range of the rows is not the same. The part

seized consequently cannot slip from their grasp, and they will prove serviceable in securing the broad ligament in vaginal hysterectomy. (See diagram.)

TUBERCULOSIS OF UTERUS AND ANNEXES.

Lepetit ⁷_{Nov., '92} reports a case of tuberculosis of the uterus in a woman who died of tubercular peritonitis. The parenchyma of the uterus was increased in volume and infiltrated with nodules of tubercle. Ulceration of the mucous membrane had occurred, extending to the neck, a considerable portion of which was destroyed. J. Whitridge Williams, of Baltimore, ⁹_{Dec., '92} says that genital tuberculosis may occur at any age. Cases have been reported at the extremes of ten weeks and eighty-three years, but it is most likely to occur in the period of greatest sexual activity. The symptoms of ulceration of the vulva or vagina do not differ essentially from those produced by ulceration of other origin, the only characteristic being their marked chronicity and apparent tendency to heal, which is, however, deceptive, as they nearly always recur. C. A. Morton ²_{May,} reported a case of tuberculosis of the Fallopian tubes, uterus, and vagina in a child. Doran observed that tuberculosis of these parts in children frequently appears to follow on vulvo-vaginitis. The gonococcus destroys the epithelium of the tubes and prepares the parts for tuberculous infection.

DISEASES OF THE TUBES.

Gonorrhœal Salpingitis.—F. B. Robinson, ²⁰²_{July 10} states that the gonococcus thrives and exists indefinitely in the endometrium, which furnishes the requisite conditions,—cylindrical epithelium, glandular cells, heat, and moisture. Gonorrhœal endometritis may give rise to pain at menstruation and lead to abortion; it often lasts for years. Inflammation of the Fallopian tube is simply a continuation from the endometrium. The great majority of pyosalpingites are due to gonorrhœa, a few cases being due to puerperal sepsis, uterine cancer, actinomycosis, tuberculosis, and uncleanly instruments. The most-constant symptom of tubal trouble is adhesion. Another result of gonorrhœa is hydrosalpinx.

The same author ¹⁸⁶_{June} says that about 70 per cent. of tubal disease occurs on the left side, and that women are more diseased on

the left than the right side (1) because of a restless rectum, dilating and contracting; (2) an overloaded sigmoid, obstructing the left ovarian vein; (3) because of the longer left plexus pampiniformis, whose vein empties at right angles into the left renal vein; (4) because of the left tube having a larger lumen than the right, thus making it capable of receiving more infection than the right; (5) because of the excessive circulation on the left side and the greater size of the plexus pampiniformis. The defective venous return on the left side induces blood-stasis.

Geo. T. Harrison, of New York, ¹_{Oct. 29, '92} very justly considers gonorrhœa in women as a serious disease, and says the clinical facts have demonstrated that all the inflammatory processes, whether in the Fallopian tubes, ovaries, peritoneum, or broad ligaments, not only could be, but were, produced by the gonococcus of Neisser. He says the wife of a man who prior to matrimony had been the victim of this disease will sooner or later have some form of gonorrhœa. He claims that nine-tenths of the cases remain uncured, and, of one hundred women who married men who have had this disease, hardly ten remain healthy. He classifies the consequences under four heads: (1) acute perimetritis; (2) recurrent perimetritis; (3) chronic perimetritis; and (4) oöphoritis. The danger of such conditions obligates a gynæcologist to be careful in dilating a woman's womb, as the infection is early carried into the uterine cavity and from thence to the tubes.

Chaput ²⁴_{Jan. 15} reports a case in which there was a large salpingitis of each tube, so firmly adherent to the uterus that at first it seemed almost impossible to separate it. The uterus was split, antero-posteriorly, through into the vagina, each half secured by a ligature at the junction of the cervix with the body, and the upper portion with the corresponding tube and ovary cut away. Drainage was made through the vagina. The abdomino-vaginal drainage-tube was used. This was made of caoutchouc, about twenty centimetres long. The vagina had been previously disinfected.

Pyosalpinx.—E. Houston, of Stanberry, Mo., ⁷²_{May} recommends the use of the microscope in diagnosing pyosalpinx. In such cases the menstrual blood will be found to contain pus-corpuscles in great numbers.

Butler-Smythe ⁶_{Jan. 14} reports double pyosalpinx, in a woman 26

years of age, a large, elongated swelling centrally situated, reaching to the umbilicus. This was movable from side to side, but not tender to the touch. The uterus was pushed in front of the tumor, and was distinctly recognized through the abdominal walls. The lower part of the tumor was found in Douglas's pouch. On the left side of the uterus was another fixed swelling, filling the pelvis on that side. The tumors were closely adherent to intestines and omentum, rendering their separation difficult and tedious. They were removed without rupture, which seems to be the preferable plan, rather than to remove the contents by aspiration, as, when the tumor is once emptied, its landmarks are destroyed and the difficulty of the operation increased. In separating a tumor, the pulp of the finger should be used as much as possible, to prevent laceration and rupture of the tumor. The patient recovered.

Veit,²_{Jan. 14} reports two cases of pyosalpinx communicating with the rectum. The first patient had stricture of the rectum close to the site of the perforation. The suppurating tube was removed and the opening in the rectum sutured. Sterilized gauze was introduced into the abdominal wound for drainage. The patient died, seven months later, of phthisis. The second patient had repeated attacks of pelvic peritonitis. Operation was repeatedly deferred. The tubes were distended and were removed, and perforation of the bowel found after careful search. The patient died from obscure symptoms, when a circumscribed peritonitis was found in the pelvis,—an encapsulated cavity, which communicated with the rectum by a narrow, tortuous, fistulous tract. Veit thinks that this case would have been saved by drainage. Robert A. Murray¹⁹_{Sept. 9} concludes that many cases of pyosalpinx are curable without mutilating operations if the endometritis be treated by curette and drainage with strict antiseptic precautions; that the drainage of pyosalpinx is possible when the tubes and ovaries are on a level with the tube, and the uterine end of the Fallopian tube is patulous or can be made so by treating the uterus; that uterine curettage and drainage should be practiced in every case before operation, unless the tubes are very distended and thin; that even after pyosalpinx the tubes and ovaries are frequently not useless organs, the proof being that pregnancy occurs and the puerperium is normal; that only after proper treatment, the tubes, ovaries, and uterus remaining bound down by adhesions, a menace to life and

health, should the radical operation be done; and that in large maternities there are very few cases of puerperal complication due to the former pyosalpinx. The author¹_{June 10} reports six cases in which he had been able to follow pyosalpinx treated by uterine drainage to subsequent conception. Delegrange²²⁰_{May 12} reports a case of enormous suppurating salpingitis which recovered after a single vaginal puncture, made with a view of arriving at a diagnosis.

Hæmatosalpinx.—Emile Camelot²³⁶_{Mar.} believes that inflammation is the cause of a very great majority of hæmatosalpingites. Tubal pregnancy arrested in its evolution is also a cause. Histology demonstrates the existence, in a large number of cases, of the chorion and its placental villousities; the regression of the placenta accompanies the intra-tubal and interstitial hæmorrhages found in hæmatosalpinx. Bland Sutton regards hæmatosalpinx as the dilatation due to a tubal pregnancy. My observations convince me that all the cases of supposed hæmatosalpinx are really cases of tubal pregnancy.

Tubal Moles.—Bland Sutton, of Middlesex, ²_{Nov. 12, '98} points out that tubal moles differ in several particulars from uterine moles. In the former the amniotic cavity occupies the centre of the mass, whereas in the latter it occupies an eccentric position, in consequence of which the thin amniotic membrane is likely to rupture, allowing the escape of the embryo. This is one reason why the embryo often escapes discovery after operation. The presence of the embryo, or even of an amniotic cavity, is proof positive of the nature of the mole; but when these cannot be made out, search must be made under the microscope for chorionic villi. Not every blood-clot in the tube is necessarily a tubal mole, for it is certain that a blood-clot may be present in the tube, apart from pregnancy. The retention of the impregnated ovum in the tube usually determines occlusion of the abdominal ostium by the sixth or, at the latest, the eleventh week, unless the ovum is lodged in the ampulla. As this process is a gradual one so long as the ostium remains patent, the ovum may at any time be extruded through that opening into the peritoneal cavity. This accident is accompanied with hæmorrhage, and the term tubal abortion has been applied to it.

Epithelioma.—A. Routier, of Paris, ⁴⁸_{Jan.} describes a case of primitive epithelioma of the tube in a woman 60 years of age, operated upon in November, 1892, presenting the characteristics

of a cyst of the ovary. Examination disclosed the connection of the tube with the cyst and dependence upon a large epithelial mass.

DISEASES OF THE OVARIES.

Ovaritis.—Comby²_{Mar. 16} reports a series of cases of inflammation of the ovaries after parotitis. Oöphoritis is much more rare after that disease than orchitis.

Cysts.—Tillaux, of Paris,⁴⁸_{Mar.} says that the ovarian cyst at first is always unilocular, and from the wall of the primary cyst appears a secondary, which projects into its cavity, sometimes externally. In this way a number of secondary cysts may develop, leaving the tumor later to present the appearance of an absolutely vegetating mass. A unilocular cyst is everywhere smooth, presenting a uniform, regular surface. Fluctuation is universal. If, upon palpation, you can observe irregularities of surface or differences of consistency, it is safe to conclude that it is a multilocular cyst, and in their absence that it is unilocular. We cannot be too positive in this, as a secondary cyst may escape the most minute examination. In cyst of the ovary and the parovarian cyst, the former is always pediculated. The pedicle is constituted either by the ovary itself or the ligament of the ovary. As the tumor increases in size it comes in contact with the abdominal wall, and upon incision we perceive its white, shining, pearly surface. The broad ligament is practically a closed sac above, open below, and continuous with the peritoneum that covers the pelvic floor, and also with the parietal peritoneum. A tumor developing between two leaves of the broad ligament unfolds these leaves, forcing them back more or less, and always remains an encapsulated tumor. In incising the abdomen in such a case, we do not see the pearly, glistening appearance, but only the surface of the broad ligament. The parovarian cyst is generally sessile. Exceptionally it can be pediculated, when the pedicle is constituted at the expense of the overdistended serous folds. The parovarian cyst is always unilocular and somewhat flabby, and presents a sensation which recalls the quivering of the hydatid. They are generally smaller than the ovarian tumors.

Batchelor, of New Zealand,⁴⁹_{Feb.} says that cystic formations from the pelvis may be divided clinically into three groups: (1) the

large ovarian tumors distending the abdomen; (2) small cystic formations occupying the true pelvis; (3) medium-sized tumors which are felt well above the pelvic brim, and whose summit may reach to above the level of the umbilicus. The latter are usually discovered accidentally; patients, as a rule, are in fair health, and

BEFORE THE OPERATION. (KIRWAN.)
International Journal of Surgery.

generally sterile. If the tumor is found springing from the pelvis with its summit from somewhere above the level of the symphysis to the level of the umbilicus, it is probably ovarian; if the tumor bulge into the vagina, unlike the simple ovarian form, sometimes involving one lateral fornix or spreading posteriorly around the

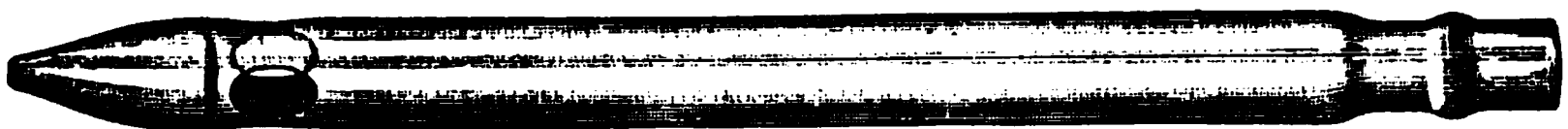
AFTER THE OPERATION. (KIRWAN.)
International Journal of Surgery.

uterus, the chances are that it arises from the broad ligament. Lobulation may be frequently made out through the vagina, and the tumor is closely adherent to the uterus. The appearance of the cyst-wall is a guide, as is the existence of a layer of movable peritoneum over the surface of the tumor. Occasionally the peritoneum is adherent and blended with the cyst, and presents a

different appearance from that of a simple ovarian tumor. The best method of treatment is by enucleation. The Trendelenburg position is often of advantage in performing the operation.

Hawkins-Ambler²_{Oct. 29, '92} reports a case of prolonged hæmorrhage resulting from cystic ovaries, and says it is as impossible to explain the cause of such a hæmorrhage as to explain menstruation. He attributes the cessation after removal of the ovaries to removal of the nerve-centres, which exist somewhere near the parts removed, and the influence of which is transmitted along these structures, either through Johnson's nerve or by the sympathetic, to the vessels. H. C. Masland, of Philadelphia,⁹_{Feb. 4} reports a case of ovarian cyst into which hæmorrhage had taken place. The clot was adherent to the cyst-wall. Serum was immediately mixed with the ovarian fluid.

Werth⁶⁹_{May 28} reports a case of suppuration in an ovarian cyst, following typhoid fever, and is inclined to attribute it to the entrance of typhoid germs into the cyst. Ovariectomy was done and



GLASS TROCAR FOR TAPPING LARGE CYSTS. (KELLY.)
American Journal of Obstetrics.

the patient recovered. W. W. Keen, of Philadelphia,¹⁴⁴_{July} reports a case of ovarian tumor weighing 111 pounds (55 kilogrammes) removed from a girl of 15, whose weight was 68 pounds (34 kilogrammes). The patient recovered. Emory Lanphear, of Kansas City,⁷²_{Apr.} successfully removed an ovarian cyst weighing 84 pounds (42 kilogrammes). George H. Kirwan, of Wilkesbarre,¹⁰¹_{Nov., '92} reports a patient upon whom ovariectomy was done, removing a multilocular ovarian cyst. The abdomen measured, at the greatest prominence, five feet six inches in circumference. The patient weighed 241 pounds (120 kilogrammes). In the annexed cuts the patient is shown before and after the operation. The tumor weighed 81 pounds (40 kilogrammes).

H. A. Kelly, of Baltimore,²⁷_{Apr.} shows the accompanying diagram of a glass trocar for tapping large ovarian cysts. He claims that it is much less expensive than a metal trocar, and more readily cleansed, being easily sterilized in steam or boiling soda solution.

Dermoid Cyst.—A. W. Johnstone, of Cincinnati, ¹_{June 10} says that dermoids arise from the ova of the patient, and not from any malformation of the epiblast in the embryo. Bland Sutton showed in 1888 that dermoids were never found in any part of the ovary, except that which contained Graafian follicles, and that it was in such follicles that they originated. Edmund Owen ⁶_{Nov.} reports a case of operation for acute peritonitis, in which it was found that the cause of the condition was a dermoid ovarian cyst, the pedicle of which had become twisted, causing general peritonitis and extensive adhesions. In addition the patient was pregnant. The peritoneal cavity was irrigated with a hot solution of boracic acid and the wound closed. The patient did well until the fourth day, when she aborted. A few days later severe uterine hæmorrhage occurred; the cervix was dilated and the cavity of the uterus cleared out; the temperature subsequently became 104° F. (40° C.), and she had a rigor, evidently due to sepsis, originating in the uterus. The latter was again irrigated and curetted, after which she recovered. The case was of particular interest from the fact that the operation was done for supposed acute obstruction.

Kammerer ²⁰⁷⁰_{Jan. 11} reports a dermoid cyst of the ovary in which, in addition to the usual contents of such cysts, there was a mass of bone, which contained a clump of irregularly-placed teeth, including examples of incisors, canines, bicuspid and molar varieties.

Papilloma.—Pye-Smith ²_{Nov.} reports papillomatous tumor of both ovaries in which repeated tapping had been done for ascites. Exploratory puncture was made and a small piece of tissue withdrawn, examination showing it to be a villous or papillomatous growth. The patient came weekly to be tapped. After one of the tappings she died, with a high temperature. Autopsy showed two large tumors in connection with the ovaries, each consisting of an immense mass of villous processes. The disease had lasted nine years.

Doran, in the discussion, reported a case in which a papillomatous mass growing in the Fallopian tube was removed, where ascites had been previously treated by tapping. Patient remained quite well after the operation. He cited another case in which he had removed two large papillary masses, the patient remaining well. If the main growth was removed, the peritoneal growths underwent atrophy. The fluid in papilliferous ovarian cysts always

remained clear. Coblentz's theory of the origin of such cysts from vestiges of the Wolffian body was, without doubt, correct.

J. Bland Sutton, of Middlesex, ⁶_{Apr. 9} reports a case operated upon for supposed hydroperitoneum, in which the symptoms were not characteristic of ascites. The uterus was natural in size, and no tumor was detected through the vagina. By rectal examination a soft mass external to the bowel could be felt pressing upon and narrowing its lumen without invading its walls. Operation was suggested to determine its character, and after the removal of the fluid the left ovary was found to be replaced by a large, soft, warty mass, of the size of two closed fists. The tumor was carefully withdrawn through the incision, and its pedicle transfixed and ligated with silk. The right ovary was in a similar condition, though smaller. The pelvic peritoneum was covered with a velvety mass of soft, pink warts, which bled freely when they were rubbed with a sponge. The tumors were typical examples of papillary cysts arising in that portion of the ovary known as the paroöphoron. Such warts develop from the inner walls of the loculi, and frequently grow so rapidly that the walls rupture and become everted, allowing the warty mass to project freely into the peritoneal cavity. Surgeons are generally deterred from further operation when they find the warts on the peritoneum, supposing them to be malignant, but the author asserts that they will quickly disappear after the primary tumors have been removed. Just so long as the seed-supply continues, new warts spring up. Removal of the tumor causes the supply of epithelium to cease, the warts die, and the crop is not replaced. These tumors may give rise to secondary growths in other organs, as in the pelvis of the kidney.

Nelson C. Dobson, of Bristol, ⁶_{Oct. 8, '92} reports a case of ruptured papillomatous ovarian cyst, with dissemination of papillomatous growths over the peritoneum, in which section was done and the patient fully recovered.

E. G. Cutler, of Boston, ⁹⁹_{Oct. 8, '92} reports a case in which sarcoma of the ovaries was complicated by cancerous nodules in the heart, lungs, omentum, peritoneum, suprarenal capsules, liver, stomach, and intestines, with spindle-celled sarcoma of the ovary.

Williams ⁷⁶⁴_{Oct., '92} reports a number of tumors which had been diagnosed as osseous tumors of the ovary. Careful examination, however, disclosed a mistaken diagnosis in every case. While the

tumors had the resiliency of a billiard-ball, examination showed this to be the calcification of the structure of the tumor.

Cancer.—Laphorn Smith²⁸² quotes Winckel as saying that isolated primary cancer of the ovary may be completely cured by early extirpation, though it fails, of course, to produce a radical cure when adjacent organs, especially the peritoneum, have become affected. When the carcinomatous tumor can be readily extirpated the operation will remove the source of the ascites and tension, and at least temporarily contribute to the patient's comfort.

Removal of Uterine Appendages.—R. P. Harris, of Philadelphia, ¹⁹_{Oct. 18, '92} properly calls attention to the misuse of the word laparotomy, and shows that cœliotomy is the term that should be used for abdominal section in the median line. He says this misapplication dates from 1811, in the medical thesis of a Wittenberg student named Fiedler. Since *laparo* means flank, the proper term is cœliotomy, from the Greek word *koilia*, meaning abdomen.

Playfair¹⁰⁷⁷_{Jan. 25} regards the removal of the uterine appendages as legitimate in certain cases of hæmorrhagic fibroid attended with very profuse hæmorrhage. If the Fallopian tube is removed, it will not only arrest the hæmorrhage, but the growth of the fibroid itself. The operation in such cases is limited in application, because we cannot apply it to fibroids of very great size or where the ovary is spread over the tumor; or, again, the fibroid may be twisted out of its ordinary position, so as to render it impossible to remove both appendages. It is not legitimate until further means to arrest hæmorrhage have been tried, as the operation is not without considerable risk. It is justifiable in pyosalpinx, hæmatosalpinx, and hydrosalpinx,—conditions that are incurable without operation, and in which the life of the patient is always in danger. In such cases it is simply a question of diagnosis. The operation should not be done in mere neurotic cases. It is a question whether the cases of hystero-epilepsy that have been claimed to have been cured by this operation might not have been relieved by other means. The mortality of the operation is about 8 per cent. In many cases the patients experience as much trouble after as before the operation—trouble from intestinal adhesions, strangulation and irritation, pain in the seat of the pedicle, and other conditions; in some cases continue to menstruate, so much so as to leave us in doubt as to whether the appendages have been

removed. Sometimes the difficulties are so great that the operation is necessarily incomplete.

Marie J. Mergler, of Chicago, ¹⁹_{July 23} believes that where operations have been unnecessary, or disappointing in results, the causes were: (1) too hasty decision to operate; (2) mistaking functional disturbances of the appendages for primary lesions; (3) mistaking hereditary taints and cerebral neuroses for the direct reflex of a local and acquired pelvic disease. The operation should be limited to cases where the existence of neoplasms in the appendages is certain; to cases of hernia or prolapse of the ovary when irreducible, and producing urgent symptoms which do not yield to palliative treatment; to cases in which it is necessary to arrest of the growth of uterine fibroids. Here the limits can hardly be definitely fixed. It may be performed, however, for submucous or interstitial tumors before the uterus has attained a great size, and for fibroids when the symptoms are urgent, and when, either on account of cardiac weakness or from the presence of nephritis, the more radical, though more dangerous, operation of laparo-hysterectomy would be attended with too much risk; for inflamed conditions of the appendages when the symptoms render the patient's life a burden and have resisted fair trial of palliative treatment; for cases of pus in the ovary and encysted pus in the tube; for marked reflex neuroses whose origin may be traced directly to disease of the appendages.

R. Stansbury Sutton ⁶⁶³_{Dec., '92} claims the following advantages for the Trendelenburg posture: (1) it is the safest position for narcosis; (2) the intestines float into the upper part of the abdominal cavity unless restrained by adhesions; (3) the latter, if they exist, are dealt with in plain sight; (4) the intestines do not float out of the abdominal incision; (5) a flat sponge withholds the intestines from the field of operation; (6) the latter are in plain view, bleeding vessels are seen, and the relation of all parts visible; (7) there is less hæmorrhage; (8) subsequent flushing with hot water is not always necessary; (9) shock after operation is lessened; (10) peristalsis begins at an earlier period after operation; (11) packing the pelvis with gauze is more easily accomplished. The only disadvantage is that the abdominal incision required to obtain all its advantages is slightly longer than necessary in the flat position.

Charles P. Noble ²⁰⁷¹_{Feb. 23} urges, as essentials of success in abdom-

inal surgery, the following : (1) early operation ; (2) careful preparation of the patient, with special reference to stimulating the emunctories and to procuring asepsis of the abdominal wall ; (3) an aseptic operating-room ; (4) aseptic hands and instruments for the surgeon ; (5) as great rapidity in operating as is compatible with careful, thorough work ; (6) irrigation and drainage in septic cases ; (7) careful after-treatment, embracing especially the withholding of fluids for about forty-eight hours, early purgation, and at least three weeks' confinement in bed. Discussing the subject of drainage, he claims that the improved results without it in late years are due (1) to the fact that surgeons do cleaner work and are more aseptic than formerly ; (2) they have better means for securing hæmostasis ; (3) they do not use irritating chemical antiseptic solutions in the peritoneal cavity ; (4) they deprive their patients of water for forty-eight hours after operation, thus producing systemic thirst and bringing about the absorption of serum from the peritoneal cavity ; (5) they purge early and freely on the first sign of peritoneal irritation. Drainage is opposed by many for the reasons that (1) it is an open door for the entrance of infection ; (2) it produces fæcal fistula ; (3) it favors hernia. His method of meeting the first of these difficulties is by using sterile gauze wet in sublimate solution 1 to 2000 to fill the tube, which has previously been drained by soaking up the fluids by means of pledgets of sterile cotton held in forceps. The continual presence of the wet bichloride-of-mercury gauze in the tube kills or inhibits the growth of any germs which may make an entrance. In addition to using wet bichloride gauze as a capillary drain and a disinfecting plug for the tube, he has not hesitated to pass cotton soaked in bichloride solution to the bottom of Douglas's pouch each time he dressed the tube, two or three times in twenty-four hours, as an additional means of prevention of infection. Post-operative ventral hernia may be due to extreme malnutrition of the patient when operated upon, failure to approximate the divided transverse aponeurosis, suppuration of the abdominal wound, drainage, early rising from bed, too early return to work, or failure to wear a bandage (?).

Franklin H. Martin⁶¹ reports thirty-seven cases of abdominal section for tubal and ovarian disease without a death, and says that the successful operator's trinity consists in (1) thorough

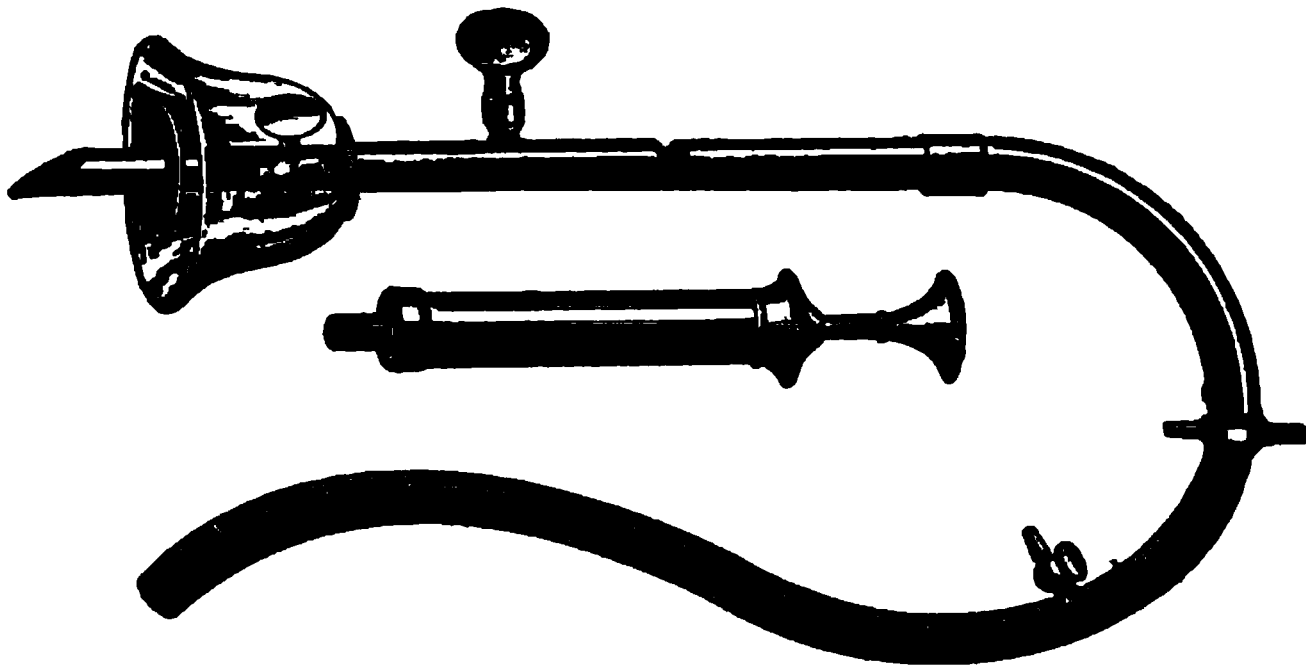
preparation; (2) thorough operating; (3) thorough after-treatment. In preparation careful attention is given to the secretion of the kidneys and to the condition of the bowels, which should be first thoroughly emptied, their contents rendered thoroughly aseptic, and a maximum tonicity imparted to them. During the second day before operation drachm (4 grammes) doses of tincture of cardamom in 1 ounce (30 grammes) of brandy every six hours should be given. Strychnine is commenced three days before operation, in $\frac{1}{40}$ -grain (0.0015 gramme) doses every eight hours, and gradually increased in quantity until $\frac{1}{20}$ -grain (0.003 gramme) doses are given. Patient should be fed on a milk diet for two days before operation.

Ligature.—Doran^{2009 v. 35, No. 2} asserts that the ligature is the best method of treating the pedicle. China twist-silk must be used, and not be too thick or too thin to make a good deep groove in the pedicle when tied firmly. The simplest loop and knot are safest. The outer border should always be secured separately whenever the pedicle is broad or short, and in long pedicles when the ovarian vessels are large. Absorption of the ligature has been authenticated by Ballance and Edmonds. Gradual destruction of the silk by leucocytes getting between the fibres has been plainly demonstrated in the case of arteries. Alleged disadvantages of the ligature were mostly due to its unskillful application and rough handling, too-thick silk, or complicated knots. The pedicle of an ovary and tube removed for chronic inflammatory changes is less favorable for ligature than a pedicle of a cystic or solid tumor of the ovary. II. Speier, of Duluth,^{59 Aug. 5} reports the removal of silk-worm gut which had been in the tissues for three years.

Ovariectomy Trocar.—Alexander Duke,^{2 June 17} introduces a new ovariectomy trocar, the chief advantages of which are that no forceps or claws at the side of the cannula will be required to hold the cyst, the latter being firmly attached to the glass-bell end of the cannula by suction alone, the air contained in the bell being first exhausted by the pump. The trocar can then be driven home, and the fluid finds its way entirely through the cannula or tube. Should the contents of the cyst not flow freely, the tube itself can be exhausted of air by the use of the pump. (See cut on next page.)

J. Ward Cousins^{2 Nov. 25} exhibits an ovariectomy trocar which con-

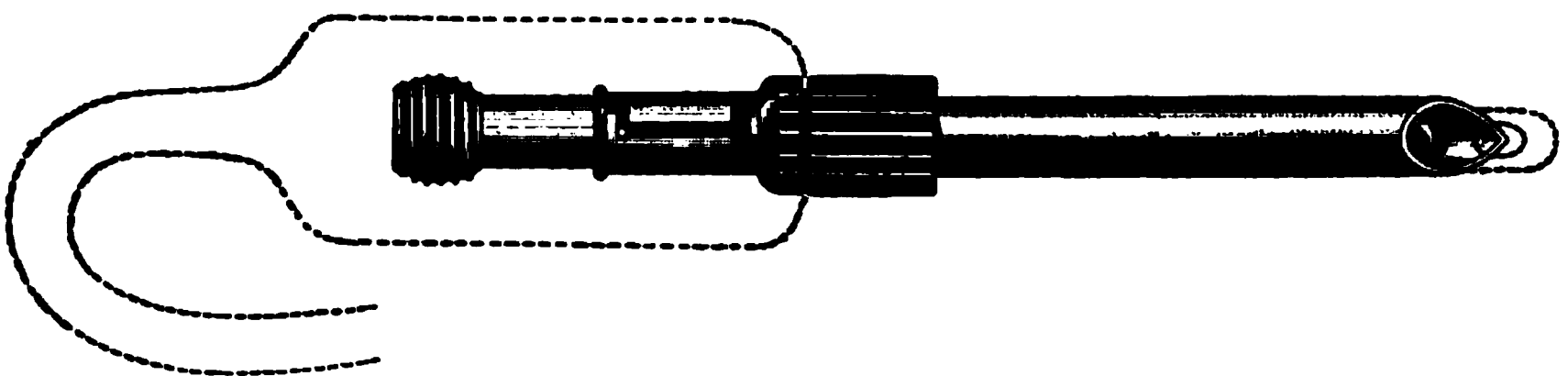
sists of two tubes; the outer carries a pen-shaped lance, and the inner is rounded to a point with a large lateral opening. By the bayonet-point the instrument is opened and shut, the orifice and point being inclosed in an India-rubber case which is continuous with the discharge-tube. The case is securely fixed by slipping the end over a metal block and then compressing it with a ring



OVARIOTOMY TROCAR. (DUKE.)
British Medical Journal.

attached to the trocar. It has no claws for holding the cyst. It can be kept from slipping out of position by the hand of the operator. It is illustrated below.

W. R. Pryor⁸¹ opposes drainage in abdominal section for tubal disease, believing that it may result (1) in possible infection of the wound; (2) in probable ventral hernia; (3) in inevitable binding together of the intestines by adhesions. Kelly² says he



IMPROVED OVARIOTOMY TROCAR. (COUSINS.)
British Medical Journal.

formerly drained from 75 to 80 per cent. of all cases, and now drains in but 10 to 15 per cent. The glass tube is not free from danger. After the second or third day it becomes infected with the white-skin staphylococcus. Suppuration is, doubtless, rare, but sometimes occurs. The long, narrow gauze bag, containing several strands of gauze, is safer and better than a glass tube. It

is an error to believe that all the blood which tends to collect in the pelvis comes away through the glass tube. The gauze bag is flexible and requires no cleaning out, and is, therefore, the best method of drainage for the abdominal cavity. It removes all fluids rapidly, and that which remains is quickly absorbed. In wide-spread peritoneal infection two or more openings for drainage are needed. A bandage of gauze should be packed into the infected abdomen. Yards will be required; in this way desperate septic cases will be saved. We must drain seldom, but when done it must be done thoroughly.

Complications of Pelvic Surgery.—M. Walthard, ²¹⁴_{Aug. 1} finds that the long-continued contact of the atmospheric air with the normal serosa of the abdominal cavity results, through drying, in the necrosis of the superficial cell-layers,—an injury which, even if completely aseptic, is an etiological factor in the development of peritoneal adhesions.

Ashton, of Philadelphia, ¹²¹_{Mar.} enumerates the accidents of an incision through the abdominal wall, as hæmorrhage, peeling off of the parietal peritoneum, wounding of the bladder or intestines, or an underlying growth. Hæmorrhage is rare; if free, it should be checked with forceps, and these removed as soon as the peritoneal cavity is opened. The parietal peritoneum may be pushed off when there is union between the tumor and the peritoneum. The bladder is more likely to be injured in children, as it is situated higher. It may be pushed by large subperitoneal growths as high as the umbilicus, or even higher. Introduction of the sound will determine its position when in doubt. Intestines or an abdominal growth may be wounded where the parietal peritoneum is adherent. An injected appearance of the connective tissue and the subperitoneal fat indicates parietal adhesions or thickened peritoneum. Where the abdominal wall is greatly distended the peritoneum is thinner than normal and more closely applied to the growth beneath, and the surgeon may injure the contents unless he exercises care. Adherent intestines must be looked for in all secondary operations. Escape of intestines through the abdominal incision may result from vomiting, contractions of the abdominal muscles, or irrigation. It will sometimes be difficult to replace them *en masse*, though readily accomplished if the last portion of the gut which escapes is pushed back

with one hand, while with the other the succeeding segment is returned. In recent inflammation adhesions are easily broken up and their management is, consequently, not difficult. Old adhesions are firm, more or less fibrous in nature, and are found in old and neglected pelvic disease, in large cystic tumors of the ovary, uterine fibroids treated by the electric current, and in solid pelvic growths of large size. They must be torn apart with the fingers or divided with scissors, and, if necessary, ligated to prevent hæmorrhage. When of the omentum, they are preferably ligated, as they are exceedingly vascular. The most serious accident is hæmorrhage, generally resulting from adhesions, or from an insecurely-ligated pedicle. Injuries of the intestine may occur in the hands of the most skillful operator, and should be repaired at once. Tears of the mesentery are serious, and frequently require resection on account of possible gangrene. Injury to the bladder should be sutured at once. The ureters have been torn in separation of adhesions, and included in the pedicle of hysterectomy. If such an injury occur, the ureter should be switched off in a new position in the bladder, or brought out in the abdominal incision.

Rose, of Kings College Hospital,²²_{Feb. 15} reports the case of a woman, 23 years of age, upon whom ovariectomy was done; a fæcal fistula followed, from which bile, undigested food, and a round-worm passed. The skin becoming excoriated around the wound, he made a median incision and a cross one at right angles, and after considerable difficulty found the infected portion of the intestine. There were two openings in the jejunum. After these were freed from adhesions it was found that the two coils of the jejunum were adherent to each other, in both of which there were two holes the size of a pea. The openings were exactly opposite the attachments of the mesentery. Adhesions were divided, the inverted mucous membrane turned in, and each opening sewed up separately with a row of Lembert sutures, put in to cover the apertures with peritoneum. The affected tissue was fastened to the anterior abdominal wall by a stitch, so as to be readily found if necessary.

Collapse.—Leonard Remfry⁶_{Nov. 20, 78} reports an ovariectomy in which the patient five hours later began to vomit and retch repeatedly and became very restless, temperature slightly subnormal, pulse 120, gradually becoming worse, complaining of pain in the left iliac

fossa. Two hours later the pulse was 140, and scarcely detected at the wrist; she was given ether and brandy subcutaneously and champagne by the mouth. Collapse continued, with cold extremities and perspiration. Nine hours after the operation she was apparently moribund, fluttering radial pulse upon the right, and not felt upon the left. A salt solution, $1\frac{1}{2}$ drachms (6 grammes) to the pint (500 grammes), at a temperature of 110° F. (43.3° C.), was injected by means of a cannula, introduced through the right median basilic vein, and $2\frac{1}{2}$ pints (1250 grammes) injected at numerous short intervals. Improvement began with the injection of the first half-pint. Before it was completed the lips showed a faint-pink color, extremities began to be warm, the patient voluntarily expressing herself as feeling better. She improved and finally recovered.

Ovariectomy and Pregnancy.—Fancourt Barnes, of London, ⁴⁹_{Nov., 98} reports the removal of a multilocular ovarian cyst in which there were adhesions of intestine to almost the whole surface of the cyst and the intestines in a state of acute congestion. The tumor was found to spring from the left side of the uterus, which was enlarged about the size of a four months' pregnancy. The abdomen was washed out with clean, warm water and the wound closed with silver sutures. The patient recovered without interruption of the pregnancy.

Sippel, ²_{Feb. 25} reports a double ovariectomy in a woman, 30 years of age, who had one child 5 years old and was very anxious for another. The right ovary was converted into a tumor the size of a child's head, and without a trace of normal ovarian tissue. This was removed with its tube. The other ovary was the size of a goose-egg. Along the hilum was a long tract of normal tissue. A clamp was applied above this tract to check hæmorrhage and the diseased part of the ovary cut away; the raw surfaces left were united by means of catgut sutures, while some blood-vessels were tied separately. This healthy part was an inch and a half long and a third of an inch thick; the left tube was undisturbed. Menstruation returned after the operation, and ceased on the 22d of August, 1891; on the 7th of April pregnancy was progressing favorably, and she was safely delivered of a living child.

Ovariectomy in Children.—Aldibert, of Paris, ⁴⁸_{Mar. 11} states that the greater majority of tumors in children are dermoid. A frequent

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had a tumor about the size of a seven months' pregnancy. It was supposed that this was pregnancy, notwithstanding her extreme youth. This was apparently confirmed by the development of the mammæ, well-marked linea nigra, copious development of hair over the mons veneris, as shown in the cut, and a well-marked bruit was heard. The tumor was freely movable, tense, firm, and had apparently no intimate connection with the pelvis. The mobility and absolute solidity decided against the possibility of pregnancy. The patient was carefully examined under an anæsthetic; the remains of the hymen found thick, completely penetrated; vaginal walls smooth; cervix enlarged, soft, and patulous. The uterus was found to be slightly enlarged, over three inches in length. Manipulation caused free hæmorrhage. It was supposed to be a sacculated ovarian tumor. An operation was performed on November 25th. The tumor was aspirated, but only a small quantity of sero-sanguineous fluid withdrawn; had no adhesions; was perfectly free in every direction. Abdominal incision had to be enlarged within an inch and a half of the ensiform cartilage, owing to the fact that the tumor was incompressible. It was removed, and found attached to the left side of the pelvis by a long pedicle. The Fallopian tube was greatly distended and tortuous, the opposite ovary small and undeveloped; the uterus was enlarged, corresponding with the dimensions indicated by the sound previous to the operation.

PREMATURE SEXUAL DEVELOPMENT AND
ABDOMINAL TUMOR. (CROON)
Edinburgh Medical Journal.

The tumor weighed over 6 pounds (3 kilogrammes) and was found to be a round-cell sarcoma interspersed with areas of granular and slightly fibrillated intercellular membrane.

Ovariectomy in the Aged.—Homans⁹⁹_{May 25} reports twelve cases of ovariectomy in which the patients were over 70 years of age. Nine recovered and three died. Of the three deaths, in one the tumor was cancerous and incompletely removed. In another the patient had been paralyzed for eighteen months, tapped four times, and had an adherent tumor; while the third had been tapped six times, had œdema of the lower extremities, and the operation was long and tedious. Mary Sherwood, of Baltimore,¹⁴⁴_{July} reports thirty-eight cases of ovariectomy in patients over 70, in which there was a mortality of 5, or 13.1 per cent. Statistics show that the percentage of recovery in patients over 70, as shown by results of American surgeons, is 86.8 per cent.; that the indications or contra-indications, as well as the results, for ovariectomy in the aged are essentially the same as for this operation in general. She ascribes to Homans, of Boston, the honor of having operated on the oldest patient, a woman aged 82 years and 4 months. J. Rutherford Morison, of Newcastle-on-Tyne,⁶_{Jan. 21} reports five cases of ovariectomy on patients over 70 years of age, in which four recovered.

Resection of Ovaries.—Pozzi²⁷_{Sept.} advocates resection of the ovaries in diseased conditions rather than complete extirpation. The diseased portion of the ovary is removed by two incisions, and the lips of the wound stitched together with catgut. Ignipuncture is substituted for resection where the lesion consists of scattered small cysts. He submits a report of 12 cases, 6 of which were operated on by resection, 6 by ignipuncture. With the exception of one hysterical patient, all have been entirely, or almost entirely, relieved of pain. Menstruation has occurred with great regularity, and in several cases where it was formerly irregular has become regular. A. Martin,⁶⁹_{July 27} in resection of one ovary after extirpation of the other, made several punctures, on account of watery or bloody cysts, in 27 cases, 1 being fatal. Of the 26 patients recovered, disease in the rest of the ovary occurred in 2, so that a second section was necessary. Eight of the remaining 24 became pregnant after the operation. Resection of the stenosed tube after extirpation of the other diseased oviduct was done in 40 patients, with 3 fatal cases. Of the 37 recoveries 4 were not per-

manently healed, but developed perimetritis; 1 woman conceived. Of 141 enucleations of intra-parietal myoma of the body, 26 died; of 115, 4 developed new myomata; 2 conceived.

Ovariectomy for Neuralgia.—O. W. Braymer, of Camden, N. J.,¹⁰¹ reports a case of ovariectomy for the relief of violent sciatic neuralgia. He became convinced, from examination, that the trouble was reflex from a prolapsed and adherent ovary. The operation was attended with relief of the neuralgia.

Joseph D. Bryant, of New York,⁵⁰ reports a fourth laparotomy on an hysterical patient. She had had inflammation of the bowels three times, as she expressed it. Each of these attacks led to a section. The first was done by Kocher, of Halle; the second in a town in the interior of Connecticut, and the third by Norris, of New York.

Ovarian Hernia.—Rushton Parker,² reports the case of a nurse-maid, 24 years of age, who underwent an operation for tubal inguinal hernia which she had had for seven years. She had worn a truss for eleven months, which aggravated rather than relieved the discomfort. From the shape and feel of the swellings in both groins he suspected them to be ovarian, and, as they were quite irreducible, he performed double herniotomy. Each hernia was found to be provided with a sac which communicated, on one side, by a narrow neck with the peritoneal cavity, but on the other was shut off. The sole contents of each was an ovary of average size, with the free end of the Fallopian tube. A catgut ligature was thrown around the upper end of each sac, including the Fallopian tube and ovarian pedicle, and the external portion cut away. Later investigation showed that this woman was without a uterus or vagina.

ECTOPIC GESTATION.

A. W. Edis, of London,² says, of ectopic gestation, that there may or may not be symptoms of normal pregnancy. The evidence on this point varies greatly. In some it is overlooked, and no suspicion of pregnancy arises. In other cases the mammary and minor symptoms and signs of pregnancy are well marked. The patient's attention is first directed to irregular gushes of blood from the vagina, ceasing and suddenly recurring without assignable cause; more or less fixed, grinding pain in

one or the other iliac fossa, occasionally extending down the inner aspect of the thigh; severe paroxysmal pains in the same locality, with constitutional symptoms, soon passing off, to return again in a few days with increased violence; symptoms of abortion without any appearance of foetus, merely the expulsion of shreds of membrane, clots, or rarely a complete cast of the uterus in the form of decidual membrane, leading the patient as well as the practitioner to believe that a miscarriage has taken place. The patient may give a history of several years of unfruitful married life, or infertility following a severe miscarriage or confinement. Then a period is missed or the interval unduly prolonged. The usual symptoms of pregnancy may be illy defined or absent, though the patient frequently has the conviction that pregnancy exists. On vaginal examination the uterus is generally found to be bulky and pushed to either side of the pelvis by some more or less defined tumor or swelling, which is often tender on pressure. In some cases distinct pulsation can be felt in the vaginal *cul-de-sac*, on the side where the swelling exists. Bimanual examination discloses sensation of a cyst, and ballottement may occasionally be detected. There may be occasional discharges from the vagina, with possibly shreds or clots, and the occurrence of paroxysms of pain limited to one or other inguinal region. There may be marked trouble with the bladder, irritability or want of power of retention or difficulty in micturition; the bowels may be constipated or completely obstructed, if gestation be on the left side. Another symptom may be oedema of the lower extremities corresponding to the side on which the tubal gestation exists, an occasional feeling of numbness or aching in the groin, or want of power in the leg. After possibly a number of attacks of colicky pain, with intervals of entire freedom, the patient, in the third or fourth week, is suddenly seized with pain in the lower abdomen, as if some irritating poison had been taken or something inside had been torn away. Fainting, collapse, clammy perspiration, occasionally convulsions and delirium, ensue, with symptoms of violent shock and internal hæmorrhage, from which she may die within a few hours. The conditions which may be confounded with ectopic gestation are: 1. Pelvic hæmatocele (most frequently). It is true that this condition is by some attributed in every case to a ruptured tubal or ectopic gestation. There are

cases, however, in which hæmatocele occurs where no suspicion of pregnancy can be for a moment entertained. It occurs at or about the menstrual period. 2. Another condition is threatened abortion. There is some cystic enlargement of the ovary or tube on one or other side; there may have been more or less persistent pain due to an enlarged ovary or tube. It is rarely so urgent as in ectopic gestation. If there be retroversion and retroflexion of the gravid uterus and some antecedent attack of peritonitis has caused fixation, the difficulty of diagnosis is increased. In such cases, however, there is a history of localized pain extending over some years, and also a previous attack of peritonitis.

In this relation it may be of interest to recite a case that came under the observation of the editor of this department, in which a woman, who had passed but a week over her menstrual period, entered the clinic of the Jefferson Hospital, suffering from pelvic pain. Upon examination it was found that the uterus was retroverted and in a mass; upon the right side there was a pulsation as distinct as if the finger were placed over the femoral artery. This patient was subsequently examined by her attending physician, and in a few minutes later information was brought that she had fainted. Upon reaching her, she was found to be pulseless, gasping for breath, and perfectly pallid. She was at once taken to the ward, given hypodermatic injections, the foot of the bed elevated, surrounded by hot bottles, and, as soon as her husband could be reached and permission given for an operation, the abdomen was opened. It was found to contain over three pints of blood, and a large vessel had ruptured on the right side. This had evidently arisen from a small foetal sac. The patient did not rally from the shock, and died half an hour after the operation.

Diagnosis.—George Haven⁹⁹ enumerates the following symptoms of ectopic gestation: 1. Absence, irregular appearance, and uncertain duration of menstruation. 2. Pain of severe and systematic character, which may be permanent at first, then absent for some weeks, to return later with renewed vigor. 3. Vaginal discoloration; a symptom of some importance, yet often noticed in cases where some other form of pelvic tumor is present. 4. General signs of pregnancy, such as nausea, enlarged and tender breasts, increase in the size of the papillæ, darkened areola, milk in the breasts, the presence of a tumor, irregular menstruation,

and, possibly, irregular gait. 5. History of previous childbirth or miscarriage. This is important, as cases in nulliparous women are rare. 6. Expulsion of decidua. This symptom is of great importance, when present, although in the majority of cases the clot and shreds of tissue are thrown away before a microscopical examination can be made. 7. Increase in size of the uterus, with the fundus either pushed forward or to the right or left side. 8. Elongated, soft, or patulous cervix. 9. Appendages on one side containing a thin-walled and tender cyst. The fact, however, that a tumor is felt upon both sides should have no bearing upon the diagnosis, as one tumor may be due to extra-uterine pregnancy and the other to some form of tubal or ovarian or pelvic trouble. 10. Pulsation of vessels in the neighborhood of the cyst. 11. Rapid increase in size of the tumor. 12. Presence of foetal heart-sounds. 13. Presence of placental bruit. 14. Feeling the small parts of the child, either through vagina or rectum, or by conjoined manipulation. From the fourth month to term, all the phenomena enumerated may be present. Cases after the fourth month are easier to diagnose from the fact that symptoms 12, 13, and 14 may be present. Rupture may occur in two ways—into the folds of the broad ligament, or into the abdominal cavity. If it take place into the folds of the broad ligament, there will be sudden pain with symptoms of more or less profound shock, and a distinct increase of the size of the tumor, due to the hæmatocele which is formed. If into the abdominal cavity, there will be pain, nausea, feeling of impending danger, restlessness, rapid and thready pulse, suffocation, thirst, blanching of the lips and finger-nails, and disappearance of the tumor. Pregnancy in one horn of a bicornate uterus should not be mistaken for extra-uterine pregnancy. Hæmatocele would not be mistaken for extra-uterine pregnancy, as in the vast majority of cases the hæmatocele is secondary to the pregnancy, and will have been preceded by many of the symptoms described. In cases presenting all the symptoms of extra-uterine pregnancy, it is best to assume the worst until the contrary is proven, for waiting is the worst of all policies. In cases of severe hæmorrhage it is well to bear in mind that a salt solution injected into the rectum will often cause the pulse to become stronger and less rapid, and will, in favorable cases, supply the heart with the necessary amount of fluid to work upon. Plunging a small needle

into the femoral artery and injecting warm water by means of a fountain syringe is advocated in Germany by some surgeons.

Edwin B. Cragin, of New York,²⁷ says that the sharp attacks of pain and faintness in ectopic gestation generally mean hæmorrhage. As the accommodation in unnatural surroundings is outgrown, a solution of continuity results. This may occur (1) between the chorion and tubal mucous membrane, hæmorrhage from tubo-chorionic vessels into the tubal sac distending it and causing pain; or (2) the tubal sac, thinned by its distension and weakened by ingrowths of chorionic villi, may suddenly rupture, either from traumatism, be it ever so slight, or from hæmorrhage into it, pain being caused both by rupture and escape of the tubal contents with hæmorrhage. Three methods of escape from the tube are recognized: (1) through the wall of the tube into the peritoneal cavity; (2) through the tubal wall down between the folds of the broad ligament; (3) through the fimbriated extremity of the tube, called, by Bland Sutton, tubal abortion. Cragin doubts whether diagnosis can be made between rupture of the tubal sac through its peritoneal wall and tubal abortion. In the latter, possibly hæmorrhage is less and the constitutional disturbance necessarily slighter. Diagnosis between intra-peritoneal rupture and sub-peritoneal is not only possible, but of great importance. Sub-peritoneal rupture may be suspected when there is a distinct circumscribed mass or tumor, which lies low in the pelvis, chiefly to one side, but which may extend around behind the uterus. The bulge is into the vagina, and usually is felt extending horizontally above the brim of the pelvis. The uterus is pushed toward the opposite side and forward. If a mass is situated on the left side a stricture of the rectum is produced by it. A patient rallies quickly from shock, showing that the hæmorrhage has ceased.

Henry D. Ingraham⁹¹¹ says that when a woman, married or single, escapes one or more menstrual periods and is suddenly seized with sharp, excruciating pains in the abdomen, usually more marked on one side; grows faint, loses consciousness or not; is nauseated, possibly vomits; is unable to sit up or walk, or walks with difficulty; has great tenderness of the abdomen and shreddy, stringy, uterine discharge; and when, upon examination, a boggy mass is felt posterior to the uterus, it is time for the attending physician to call on a competent consultant, unless he feels perfectly able to manage a ruptured ectopic pregnancy.

A. E. Aust-Lawrence, of Bristol, ²_{Nov. 29, '92} in six cases of ectopic gestation, found the first symptom to be pain, and not hæmorrhage. In most of the cases the pain occurred several times before hæmorrhage set in. When the previously healthy woman misses one or more periods and is taken with acute abdominal pain and fainting, these symptoms occurring at short intervals and the vaginal examination revealing a peri-uterine hæmatocele, whether extending up into the abdomen or not, it is imperative to open the abdomen without delay.

Ectopic Gestation in Both Tubes.—Walter ²_{Oct. 1, '92} reports a case of tubal gestation in which both tubes were gravid. On opening the peritoneum there was a discharge of a quantity of fatty blood with clots. The uterus was not enlarged; there was a tense cystic swelling, a little larger than a Tangerine orange, in the ligament, and a similar one to the right side and behind the uterus. The tumor on the right side proved to be the right Fallopian tube distended with blood. The left mass was found to present in its outer extremity a tear, exposing a firm blood-clot; this was occupied by an apoplectic ovum and tubal mole. The amniotic cavity presented an embryo 6 centimetres ($2\frac{1}{3}$ inches) in length; this was so thoroughly saturated with blood that it resembled in color the clot by which it was surrounded. In the right tube the ostium was completely occluded, its walls intact. In cutting into the mass, it was found to be occupied by a tubal mole. The amniotic cavity persisted, but no embryo was detected. The wall of the tube and the mole were hardened, and in due course embedded and sectioned for the microscope. Chorionic villi were found in clusters, which demonstrated beyond any doubt that the organized clot in the right tube was a tubal mole. The pregnancy in the left tube was more advanced than in the right. It is impossible to determine whether the pregnancies occurred at the same time, the one becoming apoplectic and ceasing to grow, or whether it occurred at a later period.

W. N. Whitney, corresponding editor, Tokio, Japan, ⁶⁷³_{May} cites a case, reported by G. Kimura, of a Japanese woman, 41 years of age, who suffered from extra-uterine pregnancy, and in whom a point of ulceration occurred in the abdomen above the umbilicus, through which protruded the arm of the foetus. Operation was done, the foetus removed, and the patient recovered. (See illustrations.)

Ovarian Tumor and Ectopic Pregnancy.—Stern ³⁴_{Feb. 11} reports a case of extra-uterine pregnancy complicating ovarian tumor. Abdominal section was done and the patient recovered.

Ovarian Pregnancy.—Emory Lanphear, of Kansas City, Mo., ¹¹⁵_{Dec. 92} reports a case of ovarian pregnancy. Last menstruation in May, 1892; operation, August 16; the left tube was whole and unaffected, save that the fimbriated extremity was bound down

PROTRUSION OF AN ARM IN ECTOPIC PREGNANCY. (KIMURA.)
Universal Medical Journal.

to the broad ligament by inflammatory action; the placental attachment to the ovary was plainly made out and contained the dead foetus in its ruptured envelope. The patient recovered.

Menstruation with Ectopic Gestation.—Rabagliati ²²_{July 19} reports a case of ectopic gestation which was of interest on account of the regular appearance of menstruation during the pregnancy, which misled him. No complaint was made of profuse menstruation. On comparing the foetus (photograph reproduced on next page) with

other specimens of abortion obtained in the usual way, it was found to be from 14 to 16 weeks old, and appeared to have begun life in the Fallopian tube, not far from the uterine end, where it evidently grew till the tube burst. The rent could easily be made out before the rupture took place, forming an extra-peritoneal tumor. Rupture took place in May or June, the operation being done in the following February. Subsequent attacks of pain were probably due to the

presence in the pelvis of a foreign body. There was a deformity of the upper dorsal and lower cervical vertebræ, and malformation of the left arm; the head, when first seen, was acutely flexed on the sternum and flattened out; so it was not recognized for some time after it had been taken out. The period of rupture seems to have been some four weeks later than the usual term at which rupture occurs in Fallopian pregnancy.

Tubal Pregnancy with Rupture into the Broad Ligament.—W. D. Haggard¹_{Dec. 17, '91} reports a case of tubal pregnancy in which rupture took place into the broad ligament, as clearly established by the clinical history and post-mortem

FETUS IN CASE OF ECTOPIC GESTATION.
(RABAGLIATI.)
Medical Press and Circular.

tem appearance: The patient confessed having had previous intra-pelvic trouble, presumably gonorrhœal, for which she had been treated locally; at the time of the accident, caused by jumping from a wagon, the menses had been past due; there had been a fitful, yet persistent, flow from the uterus during the entire illness; paroxysmal, colicky pains in the lower abdominal and pelvic regions had been of frequent occurrence; existence of the tumor above the pubes, which she had probably mistaken for a preg-

nant uterus; her persistent refusal to admit of a digital examination, probably fearing the detection of her pregnancy. After death there was found an enlarged and softened condition of the uterus; patulous os; escape of serosanguineous, stringy fluid; and enlargement of the left Fallopian tube, within which was a well-defined cavity containing a fruit-sac, from which the embryo had escaped. Deciduous membrane revealed by the microscope a discoloration of the rectum, produced by blood dissection around it, causing constriction and partial death.

Martin⁴ denies that ectopic gestation is the result of pelvic peritonitis, and claims that the latter is secondary, and in many cases absent. In his sixty-one cases it was entirely absent in seven.

FIG. 1.—ECTOPIC PREGNANCY. (MARTIN.)

a, corpus luteum; b, fimbriated extremity of tube, free in ovarian cyst; c, placenta; d, uterine end of tube.

Berliner klinische Wochenschrift.

These were cases in which the perversely inserted ovum led to catastrophe too rapidly to permit the development of the pelvic peritonitis. He believes that the progress of the ovum is arrested by fecundation. The latter generally takes place in the uterus, but occasionally the spermatozoön makes its way into the tube and meets the ovum. He cites a case in which the impregnated ovum was found situated upon the fimbria ovarica. The tube contained a clot of blood, but its uterine end was healthy, and provided with ciliated epithelium. The case demonstrates the possibility of abdominal pregnancy. He⁴ reports five cases of ovarian tubal pregnancies in which there was a communication with a small ovarian cyst, by which the ovum had ruptured into the cyst and through it passed into the tube. In such a case the impregnation

of the ovum may occur in either uterus, tube, or ovary, and result in either form of pregnancy. Fig. 1 shows the communication with the tube and the situation of a tubal pregnancy.

FIG. 2.—ECTOPIC PREGNANCY. (MARTIN.)
Berliner klinische Wochenschrift.

Hæmorrhage into the tube may be seen in section of tube, Fig. 2, where it has taken place between wall and foetal sac; or in Fig. 3, where all trace of the ovum has been destroyed by the

FIG. 3. ECTOPIC PREGNANCY. (MARTIN.) FIG. 4.
Berliner klinische Wochenschrift.

hæmorrhage and only the chorionic villi are recognized. In Fig. 4 is seen the collection of blood in ampullæ and the point of rupture.

Dobbert²¹_{Dec. 10, '92} says that the increased frequency of ectopic gestation is generally ascribed to inflammatory changes in the tube, and efforts have been made to ascribe it to gonorrhœa, the neighborhood of the tube, its peritoneal covering and connective tissue becoming inflamed. In purulent, gonorrhœal, and hæmorrhagic forms the tube-end becomes closed. Obliteration of the tubal lumen, inversion of abdominal ostium, significant swelling of the mucous membrane, and loss of its cylindrical epithelium are conditions which obstruct the progress of the ovum. Alterations in the situation of the tube and kinking are less important, as the ovum is either not admitted or lies in the ampulla, or in some cases may seek the other, possibly less-altered tube. Serious alterations are unlikely to result in ectopic gestation. In the early stages the tube is found free from adhesions. The most frequent cause is, without question, slight alteration in the tubal mucous membrane. Dobbert's investigations lead him to deny the existence of decidua reflexa. The placenta is made up of the entire decidua.

Joseph Price, of Philadelphia,²⁷_{Dec., '92} says he has had eighty-three ectopic pregnancies in eight thousand labors. The dangers or causes of death may be hæmorrhage, septicæmia, peritonitis, or perforation of important viscera by bone. Of these, hæmorrhage is the most frequent.

Treatment.—In some cases Dobbert²¹_{Dec. 10, '92} advocates puncture with aspirator-needle, as suggested by Landau, to determine the true character of the pregnancy. The occurrence of hæmatocele may be treated by tentative measures, leaving nature to absorb the exudation. Should elevation of temperature occur, with indications of softening of the collection, operation should be done. Whether it be performed by the vagina or abdomen must depend upon which will best serve the individual case. Small collections can generally be removed through the vagina with less danger of infection. Large collections are more suitable for section. Dombrowski's method is efficient. After careful preparation of the patient, she is placed in the lithotomy position and the posterior wall of the vagina incised until the cellular layer forming the sac of the hæmatocele is entered, when the vagina is plugged with iodoform gauze. The patient is placed in the Trendelenburg position, and an incision made in the median line. If the sac is adherent to the wall, it is opened; if not, the situation, form, and

relations of the tumor are examined, and its wall stitched to the wound. The cavity is then evacuated. After cleansing, the sutures are taken out, and as much as possible of the sac-wall removed and the remainder sewed into the cavity. The gauze is removed from the vagina and a piece carried with forceps through the vaginal opening, one end remaining in the vagina. Gauze is then packed into the cavity above, projecting from the lower angle of the wound, and the latter closed. At the first dressing the gauze is removed, the wound cleansed, and, if necessary, another inserted. Generally, the cavity will have contracted so that this will be unnecessary. The vaginal opening is kept up and the abdominal heals by granulation. As there are two openings, there is no danger of retention of secretion, and the most favorable condition is afforded for irrigation.

R. R. Kime, of Atlanta, ⁶¹_{Nov.} gives the following rules for the treatment of ectopic gestation: 1. In primary or secondary intra-peritoneal rupture of the sac, operate by coeliotomy at once. 2. Before primary rupture, extirpate cyst, tube, and ovary. Foeticide for this condition by electricity and morphine injections are but temporary expedients, suitable for cases of doubtful diagnosis or where a competent operator cannot be obtained. Their use only allures patients into a false hope of security when delay is dangerous. If diagnosis could be made in the first three or four weeks of pregnancy, electricity might accomplish more potent results. 3. With extra-peritoneal primary rupture into broad ligament, in early weeks of gestation, producing pelvic hæmatocele, wait for absorption of effused blood. If it fail, then perform coeliotomy or vaginal drainage. 4. If child survives primary rupture of the tube into broad ligament, let foetus live; keep patient under strict observation, ready to operate at any time when her life demands it, or when foetus has at least reached a viable period. 5. Surgical interference should be the rule in all cases reaching full term after spurious labor and death of foetus.

George I. McKelway, of Philadelphia, ⁶¹_{Sept. 16} advocates, in every case of ectopic gestation in one tube, the removal of the other, for the reason that if permitted to remain the patient is likely to develop a second extra-uterine pregnancy, and her life may consequently be subjected to a second danger.

Coe, of New York, ⁹_{Dec. 10, '92} regards vaginal incision as an exceed-

ingly dangerous and unscientific method of emptying the sac. There is imminent danger of fatal hæmorrhage from laceration of the placenta and the surgeon proceeds blindly. In a case of doubtful diagnosis he prefers to make an exploratory incision and find a pregnant uterus, than to expose the patient to the dangers of the vaginal incision. If the child has been long dead and the placenta bloodless, the latter should be peeled off at once. The best way of disposing of the sac is to stitch it to the edges of the abdominal wound and drain it. If it can be isolated there is no objection to its being enucleated.

Cragin²⁷ states that when the diagnosis is determined before rupture of the tube, abdominal section and removal of the pregnant tube should be done; when the product of conception has escaped from the tube into the peritoneal cavity, either through the wall of the tube or by tubal abortion, the one safe rule of action is section and removal of the tube and cleansing of the abdomen; when the rupture of the ectopic gestation sac has occurred between the folds of the broad ligament, excepting the rare condition where the life of the foetus continues, operation is not indicated unless suppuration occurs, or unless repeated hæmorrhages threaten a secondary rupture into the peritoneal cavity. In both conditions he prefers vaginal incision and drainage.

Vallin²²⁰_{July 28} says that extra-uterine pregnancy should always be considered as a very grave affection. With a case which simulates the affection no half measures should be exercised. Vessels of large size may rupture, in others symptoms of strangulated hernia may appear, and every moment's delay may be dangerous. The tumor should be removed, and, where possible, the vessels supplying the placenta should be ligated, and the placenta and sac extracted if possible.

DISEASES OF PELVIC TISSUES.

Pelvic Abscess.—Vulliet⁵⁵_{Oct. 29, '92} asserts that he has not resorted to either hysterectomy or abdominal section during the last two years for pelvic suppuration, but in eighteen cases has adopted the method of Landau, and without accident, loss, or relapse. Pus-sacs in the pelvis can be evacuated as elsewhere, by ordinary means, such as puncture, incision, washing, and drainage. In large sacs he incises the most projecting point, as the purulent sacs

of ordinary salpingitis are found bound close to the uterus by a series of adhesions. The same disinfection is practiced as in hysterectomy or section; the patient is placed in the sacro-dorsal position, the physician standing on the side to be punctured, with the leg resting on his shoulder, and body and pelvis inclined to the opposite side, which relaxes the abdomen and allows the parts to be better explored. By minute palpation externally and internally he determines the presence of collections, and, as the assistant places his hand externally, the trocar is plunged into the tumefaction through the vagina. The continued external pressure completes the expulsion of the fluid through the tube. If no liquid appear, another puncture is made. He punctures again at the end of ten or twelve days if the liquid has re-accumulated, and follows this evacuation by injecting 5 to 10 cubic centimetres ($1\frac{1}{4}$ to $2\frac{1}{2}$ drachms) of a 1-to-1000 sublimate solution, moving it about until it comes in contact with the entire sac-wall. If the fluid return the third or fourth time, he then incises the sac and tampons it with iodoform gauze, and uses for this purpose a knife like a urethrotome, terminating on the side opposite the blade by a little covered ring, which adapts itself upon the trocar. When the pus flows, the plug of the trocar is closed and the knife slipped upon the trocar until it is in the sac. It is important to guide the blade so as to save the region of the vessels, which can be determined by pulsation. In but three of the eighteen cases reported did he resort to incision and drainage, and they, like the others, were cured. He objects to Doléris's plan of dilatation and tampon of the uterus, and says that such therapeutic measures are neither prudent nor efficacious, as that organ should not be disturbed when there is pus in the annexes. Hysterectomy and abdominal section should be confined to special cases.

Chéron ¹⁴⁸_{Sept. 26, '98} advocates hypodermatic injections or transfusion of an artificial serum, consisting of carbolic acid (crystals), 1 part; sodium chloride, 2 parts; sodium phosphate, 8 parts; distilled water, 100 parts. Transfusion is made with antiseptic instruments, choosing preferably the retrotrochanteric region as the seat of the transfusion. These transfusions combat pain, favor resorption of the pelvic exudate, ameliorate the state of the digestive functions, and rapidly restore the forces of the patient. They also combat the consecutive anæmia, which renders the convalescence more or

less long—tedious even when the local condition has improved. In acute cases it may be necessary to combine small doses of morphine to secure rest and sleep.

John W. Taylor²⁶_{May}, relates a case in which an abscess-sac situated in the broad ligaments ruptured, bathing the parts in fetid pus. It was some twenty minutes before it could be thoroughly removed. The abdomen was irrigated and the cavity drained. The patient recovered without any symptom of peritonitis. Such cases demonstrate the fact that perforation has but little significance if attended to at once. The effect of perforation depends largely upon the character of the fluid. The bursting of an ovarian cystoma with gelatinous contents usually causes a sharp attack of peritonitis, attended with acute abdominal pain, distension, and vomiting, lasting for days or even weeks. If the patient survive, a low form of peritonitis results. In some cases the fluid, while not innocuous, is slow to excite inflammatory action, as also is bile. There are cases on record, however, in which bile has escaped into the abdomen and peritonitis and death resulted; so that it would be unwise to return an open gall-bladder into the abdomen without attempt at suture and drainage. Intra-peritoneal extravasation of urine varies in different cases, though a patient with much free urine in the abdomen could not be expected to recover.

W. H. Wathen, of Louisville,²²⁴_{May}, reports a case of pelvic abscess which ruptured and caused sudden death in a patient 45 years of age.

M. Handfield Jones, of London,¹⁰⁷⁷_{Dec. 23, '92} states that the principal causes of delay in healing after evacuation are: the tough, uncontracting wall of the abscess-cavity; the presence of tubercle; one or more openings leading into the neighboring intestine. He impresses the importance of early evacuation, an incision being made through the abdominal wall internally, to and a little above the level of the left anterior superior spine. After the transversalis fascia is reached the finger is pushed down into the cavity of the true pelvis until it detects a hard mass situated posteriorly. If a softened spot cannot be made out, nor pus found with a trocar thrust deeply in various directions, iodoform gauze may be plunged down tightly through the track of the finger and the superficial wound left open. Within a few days pus will come away along

the track of the gauze, free drainage of the abscess-cavity can be secured, and satisfactory recovery will ensue.

Pelvic Hæmatocele.—J. Stuart Nairne, of Glasgow, ²⁶_{Nov. 1, '92} says that surgical pelvic hæmatocele arises from rupture of one or more blood-vessels and the pouring out of blood within some kind of capsule, artificially or naturally, either intra-peritoneal or extra-peritoneal. The cause is exceedingly obscure. It may be absent in cases of greatest injury and present in those in which it is slight; may be found on the opposite side of the pelvis from that on which the operation has been performed. There is no pelvic operation in which it may not occur. It is attended with a sharp rise of temperature, and no other physical signs may be observable. It may be passed over and the elevation of temperature ascribed to some other cause. He concludes that hæmatocele is not a preventable complication of operation; that it is a most serious complication, absolutely endangering life; that it may disappear almost as rapidly as it appeared; that when it does not quickly disappear it usually suppurates. It may be due to the hæmorrhagic diathesis; to excessive depth of tissue—cellular, vascular, and muscular—between the floor of the pelvis and the roof of the vagina, necessitating greater violence in manipulation; to slipped ligature; to retraction of a vessel or vessels behind the ligature; to rupture of one or more vessels by dragging or violence; to rupture of cellular tissue or capillary net-works or venous sinuses anywhere in the pelvis where dragging may occur.

GYNÆCOLOGICAL THERAPEUTICS.

T. More-Madden, ²⁰²_{Jan. 26} states that there are two essential requisites in endo-uterine therapeutics: 1. The orifice and cavity of the uterus, if not already sufficiently dilated, should be mechanically expanded. 2. Whatever application may be resorted to should be brought into direct contact with the diseased endo-uterine structure. He advocates the dilatation of the uterus by means of different forms of dilating instruments, preferably his own. In order to bring the remedy in contact with the affected surface he uses a curette, in which the blade is made of hard silver, somewhat larger and sharper than Thomas's dull wire, and capable of being set at a deeper angle by a screw adjusted in the handle. It effectually scrapes away the structures to be removed, and by the hæmor-

rhagic depletion relieves the vascular tension of the uterine tissues in cases of congestive hypertrophy. He advocates the use of Duke's flushing curette as an effective method of cleansing the cavity of the uterus, combining the function of curette and irrigator. The one remedy that is most effective in every case is intra-uterine irrigation with hot water, in order to contract the congested vessels and improve the local circulation. Care must be exercised to have a proper instrument, otherwise the fluid may be driven through a patulous Fallopian tube into the peritoneal cavity, or into the dilated uterine sinuses, causing death from embolism; or air may be admitted, which may cause fatal metro-peritonitis. Of the many topical plans of treatment tried in congestive hypertrophy, the most satisfactory results have been obtained from the free application to the uterine surface of a strong solution of iodine in glycerin with carbolic acid, which in some instances of chronic subinvolution may be followed by the introduction of a small tampon soaked in a solution or mixture of tannic acid and rectified turpentine. The os must be thoroughly dilated and a tampon of a suitable size secured by a ligature, so that it can be easily withdrawn. The glycerin tampon is an efficient means of relieving the vascular congestion not only of the cervix, but of the endo-uterine tissues through the serous exudation produced; but is open to the objections that it is messy and incommodious to the practitioner, that watery discharge follows its introduction, that it is a source of much discomfort, and when long persevered in may produce troublesome excoriations of the external parts. He rarely uses glycerin, preferring boric acid applied with the insufflator.

Sponge.—P. J. McCourt, of New York, ⁵⁹_{Nov 13} urges the value of the sponge in the non-operative treatment of uterine disease as a soft, elastic, strong, yet yielding cushion and support for retaining the uterus in its normal position after being replaced. It can carry a large quantity of fluid medicine, which is rapidly given up to the diseased organs, and it receives in return the morbid secretions which have been eliminated by the action of the drug. Its porosity and delicate structure prevents its obstructing drainage or exerting injurious pressure upon the contiguous parts or impeding the circulation. For this purpose the sponge must be carefully bleached and made chemically clean. This is done by immersing it for twelve hours in dilute hydrochloric acid, washed till free of

ity can be acid reaction and immersed in a solution of permanganate ash until it is dark brown in color, washed again in water, says the latter remains clear, and bleached in a solution of sodium hyposulphate and hydrochloric acid mixed. The final washing leaves the sponges soft, clean, and white. A sponge of suitable size and shape is selected and a loop of soft yarn applied around it, so that the patient may readily remove it. It is then charged with a medicament, the uterus replaced, and the dressing pressed gently but firmly through the vagina and carefully adjusted. If it cause pain the sponge should be at once removed. If not, it is retained for from twelve to thirty-six hours, generally twenty-four, when it is removed, washed in aqua ammonia, and kept wet with a 5-per-cent. solution of carbolic acid until it is returned. If the parts are in normal condition and the general health good, it will come away clean and free from offensive odor. The same may be the case, though rarely, in cervical stenosis or atresia. If induration is marked, no discharge may appear until the tissues are softened by the proper remedy. In the absence of these conditions we usually find traces of blood and varying quantity of muco-pus. The latter may be white, yellow, brown, greenish, or black; in consistence, serous; viscid and glairy, like white of egg; thick and creamy; semi-solid, like softened crust; or a plastic, cheesy, grumous mass, or portions of polypi, myomata, or membranes may cling to it. At times the quantity of fluid is startling, and in cases of cachexia or scrofulous diathesis it may pour away in almost continuous stream for months. The sponge, though not materially injured by immersion in strong hydrochloric acid, is often so deeply eroded that it falls to pieces or crumbles like wet sand and produces an unendurable stench.

One of the most useful remedies for use with the sponge is the sanguinaria compound, consisting of one and one-half pints (750 grammes) of tr. sanguinaria Can.; tr. aconite and tr. belladonna, of each 2 ounces (60 grammes); tr. arnica, 5 ounces (155 grammes); water, boiled and filtered to make half a gallon (2000 grammes), mixed and filtered. It is applied in the early stages of cases suffering from the effects of exposure to cold, inflammatory affections or wherever there is elevation of temperature, and in local hyperæmia and hyperæsthesia. It will disintegrate myomata, polypi, and other neoplasms, eliminate latent iron, and has

rhagic deply caused the rapid absorption or evacuation of pelvic in cases of coele. In catarrhal conditions, when secretions are thick, white or yellowish white and gelatinous, and in enlarged lymphatics of the part the sponge is saturated with potassium chloride, 3 grammes (46 grains) of the crystals to 1 litre (1 quart) of water; in local adhesions, and when the secretions are yellow, potassium sulphate, 5 grammes (1½ drachms) to 1 litre (1 quart); in local pruritus and serous, acid secretions, sodium chloride, 7 grammes (1½ drachms) to 1 litre (1 quart); in acute and chronic gonorrhœa, with their sequela, and where the secretions are greenish or greenish yellow, sodium sulphate, 5 grammes (1½ drachms) to 1 litre (1 quart); in catarrhal conditions, with dense, white, viscid secretions, and in sterility, sodium biborate, 8 grammes (2 drachms) to 1 litre (1 quart); in the nodular variety of myomata, ammonium chloride, 6.5 to 8 grammes (1½ to 2 drachms) to 1 litre (1 quart); in polypi, caruncula, and yellow, viscid secretions, tr. hydrastis Can., 1 part to 5 of water; in induration, flexion, and elongation of the cervix, tr. apocynum cannabinum, 1 part to 5; in induration, with white, milky secretions and pain and swelling of the mammæ at the catamenial periods, tr. of conium maculatum, 1 part to 30 of water; to relieve the foetor and retard the progress of cancer, acetic acid (C. P.), 1 gramme (15½ grains) to 1 litre (1 quart). In uterine hæmorrhage, tannic acid carried by the sponge is taken up by the capillaries of the uterus or adjacent tissues or the lymphatics. Iron, when thus administered, has a threefold destiny. A minute quantity is assimilated; a great portion is cast off with the fæces, and the third portion is changed to a tannate, forms a permanent union with the tissues, and favors inflammatory and suppurative action. Some neoplasms, as myomata, polypi, condylomata, irritable caruncula, etc., have been found amenable to this treatment. In vaginitis, simple and specific, a cylindrical sponge, of suitable diameter and of length sufficient to extend from the urethra to the os uteri, is required.

Walter S. Wells, of New York, ⁹_{Oct. 22, '92} advocates uterine osmosis in the treatment of diseased conditions of the uterus and pelvic organs. It consists in introducing a small spiral-wire tube, covered with a woven texture and containing within its calibre capillary filaments constituting a wick, each extremity extending beyond the tube about half an inch. This tube is carried within

the os internum, and beneath it in the vagina is introduced a carefully cleansed, fine Syrian sponge, which is saturated with the agent desired to be used. The fluid in the sponge is drawn up by capillary action, and there is a throwing off of the heavier materials from the uterine tissues; so that an interchange thus takes place. He claims that this method of treatment will prove effective in the relief of many of the ovarian inflammations.

Ichthyol.—Curatolo ²_{Dec. 3, '98} advocates ichthyol in the glandular and hæmorrhagic varieties of endometritis, used by means of the syringe or Playfair's sound. He also found it efficacious in peri- or para- metritis and in salpingo-ovaritis. The preparation used was sulpho-ichthyolate of ammonia dissolved in 20-per-cent. glycerin for the vaginal tampons, and capsules containing 4 grains (0.26 gramme) each for internal use.

Herff ³⁴_{Dec. 27, '98} has employed it in several thousand cases, and, from his experiences during a year and a half, believes that its pain-relieving action is established. He doubts the efficacy of ichthyol given in pills. He has been in the habit of making inunctions over the region of the pelvis in conjunction with the tampons. The best results are obtained in parametritis, pelveo-peritonitis, parametritis atrophicans, and gonorrhœal parametritis.

Bloom ⁸¹⁴_{Mar.} is in the habit of using ichthyol in either undiluted form or in solution with glycerin (ichthyol, 1; glycerin, 2); applying the remedy directly to the diseased parts by swabbing the uterus and cervix with it. If the cervical canal is narrow, he injects the solution into the uterus by means of a long-nozzled intra-uterine syringe. He concludes that in endometritis it is valueless. It, however, allays the pain and tenderness, and in that respect is beneficial. In the acute forms of oöphoritis and salpingitis it has acted better than any remedy he has used, the results in the majority of cases being exceptionally good, the thickened tubes and inflamed ovaries recovering so as to leave no trace of the disease. In the chronic form it was useful in giving relief until an operation could be performed. It is of advantage also in simple chronic ovaritis and salpingitis, in relieving pain and tenderness, and in preparing the way for other applications. As an absorbent in old chronic exudations, it proved negative; but in recent exudations, of only a few months' standing, it acted better than any line of treatment. In gonorrhœal or specific vaginitis it acted promptly.

Keil ³⁴_{Jan. 17} has used ichthyol in preference to the iodine preparations to an extensive degree. The action is not only pain-relieving, but also absorbent, and it limits the inflammation, while in sub-acute processes the result is rapid. Besides the 5- to 10-per-cent. ichthyol-glycerin solution as a tamponade of the vagina, it can be employed internally in the form of pills several times daily. It is well borne by the stomach and increases its activity. Graefe, in the discussion, asserted that the pain-relieving action of ichthyol was overestimated. In some cases he observed that the patients complained of increased pain. He had observed the absorbent effect of ichthyol in a case of gonorrhœal pyosalpinx of a size of a fist, the gonorrhœal origin of which was certain. He advised, on account of the high degree of pelvic inflammation, that the patient undergo laparotomy; but to this she would not consent. An ichthyol tampon was introduced, the patient kept in bed, and at the end of four weeks the tumor had shrunk to the size of a walnut and had lost its sensitiveness, and the patient, who formerly could only walk a short distance on account of the severe pain, was able the following summer to take an extensive mountain tour.

Comolo Polacco ⁵⁷_{Nov. 20, 92} advocates the use of ichthyol, 10- to 20-per-cent. solutions in glycerin, for pelvic inflammations; he uses it as an injection into the uterus in endometritis and after curetting for endometritis. He has never seen it followed by pain or parametrial inflammation, as frequently follows a similar use of iodine. It possesses a distinct alterative influence in exudative forms of disease, which appears the more rapid and distinct the earlier the agent is used.

Arsenic.—Kleinwächter ¹⁰⁷_{May 16} advocates the use of arsenic in gynæcological practice, regarding it as excellent in its effect in anæmia, chlorosis, and in neurasthenia, with which the gynæcologist has to deal very frequently. In many cases the patient suffering from profuse menstruation and leucorrhœa is preferably treated by constitutional rather than local means. As the general health improves, the symptoms rapidly subside. He favors the arsenious waters, preferably those of the Trebeniz Guber Springs, in Bosnia, as being the most constant in composition.

Pelvic Massage.—Vineberg ¹⁵¹_{Apr.} bases the following conclusions on two years' experience with pelvic massage: (1) pelvic massage is the most valuable therapeutic measure in a large percentage of

gynæcological affections ; (2) if properly applied in cases where it is indicated, it is a thoroughly safe procedure ; (3) cœliotomy and ventro-fixation for displacements of the uterus and for residue of inflammatory processes are unjustifiable until the case has first been subjected to a thorough trial with pelvic massage ; (4) it must entirely replace Schultze's method, which is a dangerous procedure, limited in its application, and not nearly as quick in breaking up adhesions of long standing ; (5) of all methods for the treatment of adherent and displaced pelvic organs, it must rank as an ideal one, calling for no mutilation, and for no fixation of organs. The latter is in itself pathological, as nature has given these organs, especially the uterus, a wide range of mobility.

Dilatation of the Uterus.—John Williams, ¹⁰⁷⁷_{Nov. 2, '92} in a discussion on the subject of dilatation of the uterus, gives the following rules : (1) for making intra-uterine applications and for curetting the unimpregnated uterus, bougies are efficient and the best means for dilating the cervix ; (2) for exploration of the uterine cavity and the removal of intra-uterine growths in the unimpregnated organ disinfected tents should be used, followed, if necessary, by bougies ; (3) in women who have been recently pregnant, bougies may be employed both for exploration and for removal of retained portions of placenta or membranes ; (4) there are conditions of the pregnant uterus in which the external orifice is so unyielding that dilatation sufficient to admit the introduction of a finger cannot be effected by bougies. In such cases tents should be employed. Athill ¹⁶_{Nov., '90} believes that rapid dilatation should be employed only in cases in which the cervix is soft and relaxed, and the os uteri patulous. In all others he advocates the introduction, in the first instance, of one or two laminaria tents, which in eight or ten hours produce that relaxed condition which is desirable, the dilatation being, on their withdrawal, completed to the requisite extent by the use of Hégar's or some other form of dilators. He advocates, in cases in which the curette is employed, the subsequent injection into the uterus of small quantities, beginning with 5 or 6 minims (0.32 or 0.39 gramme), one at a time, of tincture of iodine, phenol, or some similar agent.

INSTRUMENTS.

A. C. Stanard, of New York, ⁵⁹_{Mar. 11} presents a syringe for intra-uterine injections, as shown in the accompanying cut. He most

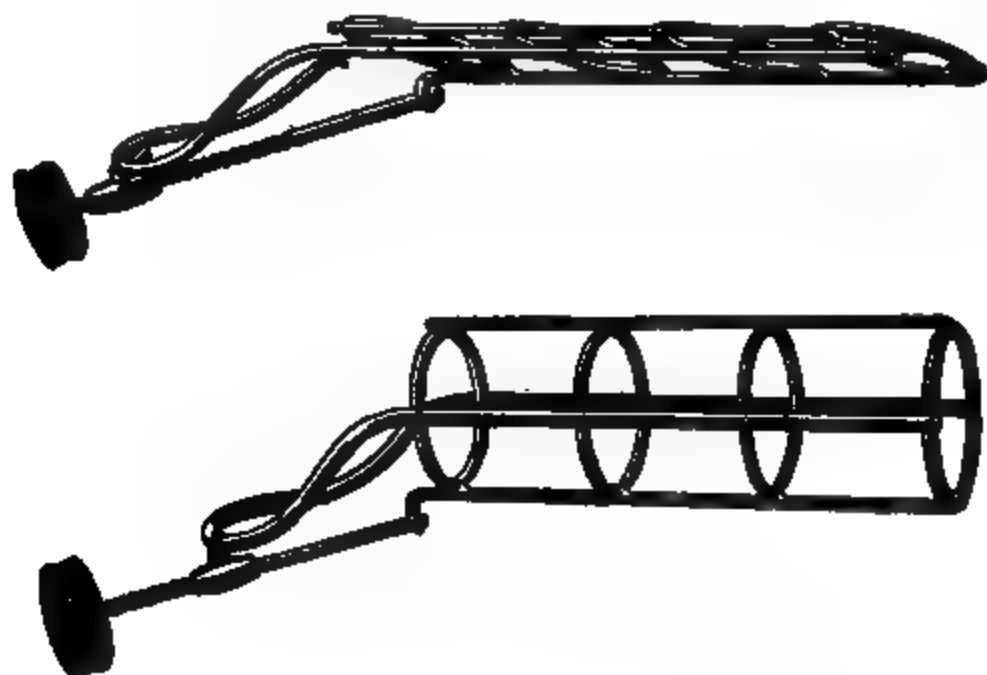
frequently uses peroxide of hydrogen under the following precautions: (1) to inject a smaller quantity than the estimated capacity of the uterus; (2) to pass the end of the barrel only a little way above the internal os and inject gently. A jet against the fundus or distension of the uterus may cause colic.



SYRINGE FOR INTRA-UTERINE INJECTIONS. (STANFORD.)
New York Medical Record.

Duke,² introduces a new form of vaginal speculum, represented in the accompanying diagrams, for exploration of the vaginal walls, the os, and cervix uteri.

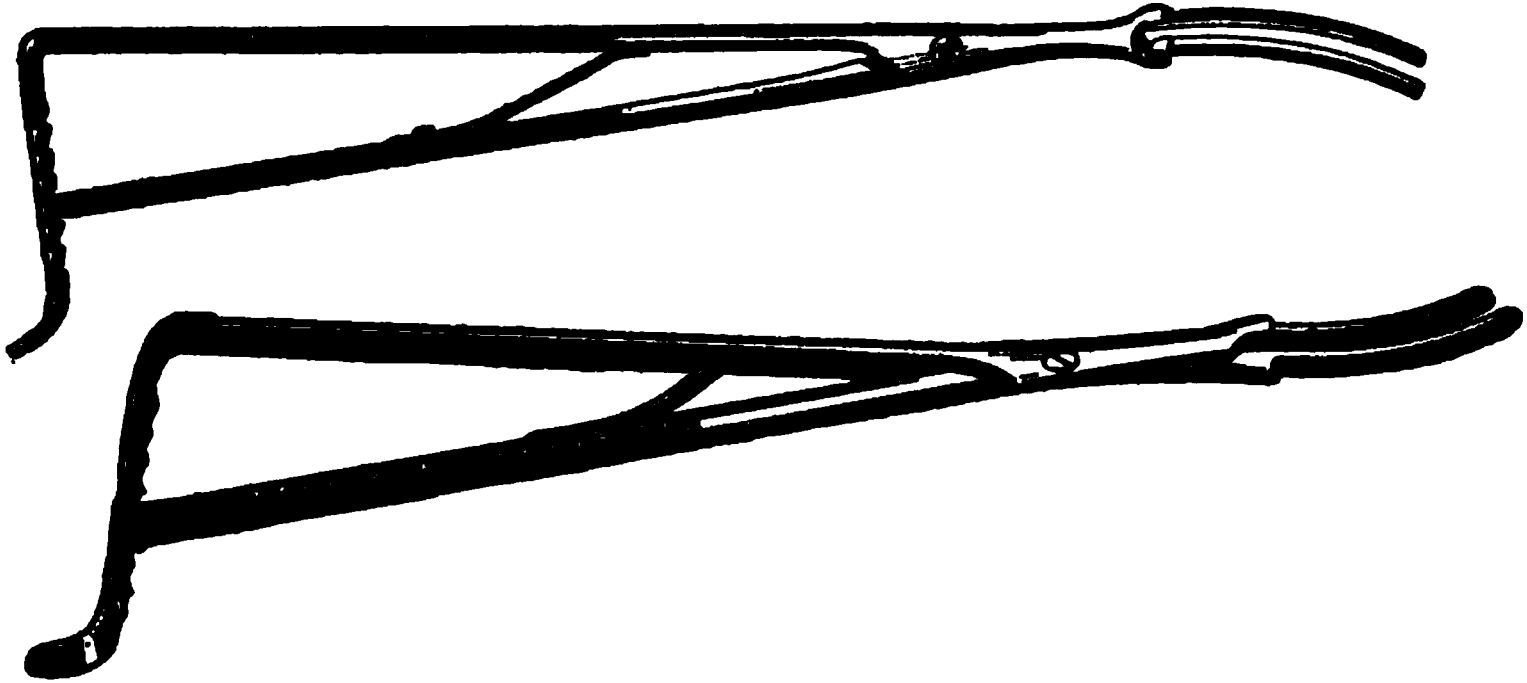
C. Y. Pearson, of Cork,⁶ recommends the uterine dilators represented in the diagrams on next page, and claims for them the following advantages: (1) only two instruments are required



VAGINAL SPECULUM; CLOSED AND OPENED. (DUKE.)
British Medical Journal.

for all ordinary purposes; (2) they will rapidly and safely dilate the cervical canal from its ordinary size to a diameter sufficient to admit a full-sized finger; (3) owing to the way in which the blades turn they will dilate the os internum to a slightly greater extent than the os externum, a point which most of the dilators in use fail to accomplish; (4) the compressing force of the hand, while

capable of exerting all the force desirable, acts as a guide to the amount of pressure, and can be used in a very delicate manner so as not to induce any injury by overstretching, having this great



UTERINE DILATORS. (PEARSON.)
London Lancet.

advantage over any screw-like mechanism ; (5) as the blades are only two inches long from the projecting shoulders, they will not come in contact with the fundus.

DISEASES OF THE VAGINA AND EXTERNAL GENITALS.

By J. M. BALDY, M.D.,

AND

FRANK W. TALLEY, M.D.,

PHILADELPHIA.

CLITORIS.

Robert T. Morris, in a paper read at a meeting of the American Association of Obstetricians and Gynæcologists, at St. Louis, ²¹⁴¹_{Sept. 21, '92} called attention to the fact that about 80 per cent. of all Aryan-American women have adhesions which bind together the glans of the clitoris and its prepuce. These, involving a part or the whole of the glans clitoridis, may cause profound disturbance, and probably form the most common single factor in the invalidism of young women. They cause a desire for masturbation, which leads to neurasthenia, and are responsible for grave reflex neuroses. He believes that the failure of the genital eminence to properly develop the prepuce and glans clitoridis for perfect cleavage means that nature is trying to abolish the clitoris as civilization advances. The method which he advances for the separation of adherent prepuces consists first in washing the vulva with bichloride-of-mercury solution. A couple of drops of cocaine solution are then thrown into the glans clitoridis through an hypodermatic needle, and 4 or 5 drops more are thrown anywhere into the prepuce. One margin of the prepuce is then seized with fixation forceps and the glans cleared with the thumb-nail. The raw surfaces are sprinkled with aristol and the prepuce packed with a little ball of gauze.

Longyear ⁸⁴⁸_{Oct., '92} believes that the operation of circumcision of the clitoris is nearly as necessary in the female as is the corresponding operation in the male. The retention of smegma behind the adherent prepuce gives rise to itching, irritation, and burning of the parts, which, from the efforts of the patient to relieve by friction, results in the habit of masturbation. Chorea, epilepsy, and

(G-1)

other less-serious nerve-perversions result. These conditions are quickly relieved by circumcision.

HYMEN.

The general belief that the hymen is formed after the outward perforation of Müller's ducts, by the elevation of a lamella on the border between the vagina and the external skin, at about the fifth foetal month, is denied by Gustav Klein.³⁴_{Aug. 1} A series of investigations were made by him upon foetuses between the fifth and sixth months, from which he concludes that the hymen is that part of the floor of the pelvis which becomes thinned by the ampullary dilatation of the lower portion of the vagina. He believes the hymen not to originate after, but through, the development of the vagina, and as a result. This theory explains the varieties of the hymen, the most frequent of which being the half-moon or sickle form, the penetration of the ducts of Müller being most commonly above.

If the perforation does not take place in the region of the mouth of the urethra, but below, in the uro-genital sinus, a hymen annularis is occasioned. If the ducts have penetrated in several places, a hymen fenestratus is produced. The absence of the hymen in congenital atresia of the vagina is also explained, as, when no vaginal ampulla is formed, no hymen can be produced.

Imperforate Hymen.—Cases of imperforate hymen with the retention of menstrual blood are reported by Nammack, of New York⁵⁹_{July 16}; Thomason, of Albion, Mich.⁵⁹_{Aug. 19}; Rosinski, of Wrouki²⁸⁷_{Dec. 14, '98}; and Drake-Brockman.²_{June 10} Drake-Brockman's case was that of a woman, aged 25 years, who had never menstruated, and in whom the distended uterus, reaching on the left side to the costal margin, had been mistaken for an ovarian cyst. The abdomen had been enlarging for six years, and the tumor had a more or less lobular feel upon digital examination. After incising the tough, resistant hymen, a thick, grumous, chocolate-colored matter was slowly evacuated. The quantity was not measured.

Cysts.—Müller, of Berlin,⁹⁵_{Aug. 19} records a case of congenital cyst of the hymen, the size of a grape, which, by pressure upon the urethra, had occasioned retention of urine. After puncture of the cyst, a few cubic centimetres of thin, white fluid, resembling pus, were evacuated, followed by the spontaneous emptying

of the bladder. Müller believes the condition to be a cystic degeneration of a persistent canal of Gärtner. Görl ¹³_{Aug. 16} reports a cyst of the hymen in a woman who had borne four children. The cyst had developed from the outer surface of a caruncula mystiformis.

VULVA.

Imperforate Vulva.—Péan, ²⁴_{June 25} in a note to a case of imperforate vulva, calls attention to the fact that adhesions between the nymphæ occluding the vulvar orifice simulate the condition of imperforate hymen, and are often described as such.

Vulvitis.—An epidemic of vulvitis in young female children, presenting all the characteristics of gonorrhœa, occurred in several German towns. ⁸⁰⁶_{Oct. '90} The children were aged from 2 to 5 years, and it was believed that they had contracted their disease from occupying the same beds with their fathers, whilst the latter were the subjects of chronic discharges, and had become infected from the bed-clothing. Microscopical examination of the discharges in such cases will afford means of distinguishing cases of false gonorrhœa from those in which inoculation has taken place. The finding of gonococci, however, is by no means conclusive evidence that the sexual act has taken place. Carpenter ¹¹_{July} reports three cases of diphtheritic vulvitis occurring in infants. In one case there was associated with it chicken-pox, and in another whooping-cough. In none of the cases was there a discharge from the vulva or vagina. Demonstrating the close relationship between vulvitis in virgins and true gonorrhœa, Lop ²_{Jan.} relates a case of mono-articular arthritis following vulvitis in a girl aged 2 years. She had suffered for a fortnight from a free, tenacious, and greenish-yellow discharge. The vulva was acutely inflamed. On the ninth day a painful swelling appeared in the right radio-carpal joint, the wrist becoming red, tender, and much swollen. Gonococci were found in the discharge.

Hæmatoma.—Cases of hæmatoma of the vulva following labor have been reported by W. W. Hill, ⁸²_{Jan. 25} Warszawsky, ²_{Mar. 25} and Simon. ³⁶_{Aug.} Hill's case occurred in a patient the day following labor, the hæmatoma measuring four by eight inches in diameter, and occupying the right labium majus. Warszawsky's case occurred on the eleventh day after labor, the perineum and right labium majus being so greatly distended as to hinder micturition

and defecation. In Simon's case the patient became conscious of the presence of a tumor in the left labium an hour after her normal delivery. The hæmatoma was as large as a child's head, and covered with stretched skin having a normal color. The bleeding was found to have come from a small artery near the clitoris.

A case of traumatic hæmatoma of the vulva is recorded by C. Beck and C. Wagner.⁷⁷⁹ The patient fell, striking her right labium majus upon the edge of a chair, a small blue spot at first marking the point of contact. This rapidly grew to the size of the closed fist and ruptured. There was great difficulty in controlling the hæmorrhage, owing to the friability of the tissues. The bleeding was finally stopped by continuous suture. Bevil³² refers to two cases occurring in his practice during the last sixteen years.

Varices of the Vulva.—Varices, according to A. Ouimet, of Montreal,¹²² may occupy the labium majus, clitoris, prepuce, and the nymphæ, either separately or simultaneously. They usually make their appearance with the first pregnancy, although they are found at times in virgins. They vary from regular, small, involuted masses to very large, knotty formations. Their rapid growth commences simultaneously with the incipency of pregnancy. Grave complications of varices of the vulva arise either during pregnancy or during or after labor. Rupture during pregnancy usually occurs in the latter months, and takes place at the upper end of the inter-labial sulcus. It is of grave prognosis. During labor rupture takes place as the head descends and engages at the lower arc of Carus, or just as it passes the vaginal outlet. Hæmorrhage from rupture of vulvar varices after labor is rare and seldom voluminous.

Gangrene.—A very rapidly spreading gangrene of the vulva was illustrated by a patient of R. W. Taylor.²⁴⁵ The disease commenced as a small red lump, located about the middle of the free edge of the labium majus. The vulva was soon surrounded by an inflammatory process. The gangrenous tissue was black as a ripe grape, and extended from the pubes downward, sparing the labium minus and a part of the labium majus, and stretching in two horn-like processes nearly as far as the sacral region. The anus was not attacked. This mass flattened into a slough of a blackish-green color and a horrible odor.

Eczema.—Lusch⁵⁸_{Sept. 2} recommends the following prescription for eczema of the vulva: R Sodæ bicarbonatis, 8 grammes (2 drachms); potassii bicarbonatis, 4 grammes (1 drachm); glycerinæ, 6 grammes (1½ fluidrachms); tincturæ opii, 8 grammes (2 fluidrachms); aquæ, 250 grammes (8 fluidounces). Misce. Wash the vulva mornings and evenings, and apply a powder of 98 parts of starch and 2 parts of powdered camphor.

Kraurosis Vulvæ.—Frances Hatchette, of Philadelphia,²⁸_{Dec. 22, '90} after reviewing the literature of the subject, reports three cases of kraurosis vulvæ, one of which she treated by applications of carbolic acid, which relieved the pain and tenderness, but had no effect upon the disease.

Tumors.—Though elephantiasis arabum of the vulva is a disease of great rarity, many cases reported as such proving to be simply conditions of exaggerated lipoma, fibroma, or tertiary syphilide, two cases have been reported. J. Halliday Croom, of Edinburgh,³⁶_{May} records a case, occurring in a woman who had suffered with tubercular glands of the neck and groin. The swelling of the vulva was first noticed, five years before, in the right labium. Three years later the left labium began to hypertrophy. The measurements of the growth were: antero-posterior diameter, twelve inches; lateral, six inches; vertical, six inches. Wyder⁵¹⁴_{Feb.} reports a case of elephantiasis which had been developing for eight years. The labia majora, clitoris, and both nymphæ were involved, and the growth was as large as a child's head.

Hartmann, Villiers, and Damaye²³⁶_{Feb.} report a case of calcified fibroma of the right labium majus which occasioned severe urinary symptoms from its pressure upon the urethra.

Three cases of pedunculated fibroid of the vulva are reported: one by Orrillard,⁷_{Feb. 24} and two by Esser.²_{Dec. 31, '92} In Orrillard's case the tumor had been noticed for six or seven years; it measured over eight inches in circumference and hung from the left labium majus by a pedicle four inches long. The tumor had begun to slough inferiorly. In Esser's cases the tumors were "the size of a child's head" and "the size of a small pear," respectively. Roberts²²⁴_{Aug. 12} describes an indurated gland of Bartholini which had resulted from traumatism and required removal.

Much valuable information upon the subject of hydrocele has been given by Lammert.³¹⁷_{No. 20} The term correctly signifies a collec-

tion of fluid in an imperfectly-obiterated canal of Nuck. It is usually detected in pregnancy or in childbed. Lammert observed the condition in a nullipara in whom it formed a tumor, as large as a man's fist, in the left groin. A pint ($\frac{1}{2}$ litre) of serum escaped on incising it. The hydrocele ended in a blind pouch at the internal ring. Cooper, of Havana, Ill., ¹⁸⁶_{Feb.} noted a case of hydrocele of the right labium, occurring in a woman about six months pregnant, who had suffered previously with dropsy. The tumor was about the size of the scrotum in the male. It was emptied repeatedly by tapping.

A case of epithelioma of the vulva is described by Galabin. ¹⁰⁷⁷_{May 2} The trouble was first noticed, two years previously, as an irritation about the vulva. Nine months later some hard, nodular swellings were noticed about the upper part of the vulva and in the sub-pubic angle. These soon burst, and gave rise to a foul-smelling discharge. The sore extended upward from immediately in front of the urethral orifice, which it did not involve, forming a deep fissure, with hard, indurated edges, extending from two and a half inches upward over the symphysis pubis. The growth was excised.

Pépin, ¹⁸⁸_{Dec. 4, 72} after noting the rarity of epitheliomatous growths upon the labia majora, reports two cases. In both the growths were seated in the right labium majus. Both cases were relieved by extirpation of the growth, and of the corresponding enlarged inguinal glands.

Zeiss ¹¹²_{Feb.} reported a case of primary carcinoma of the labium minus. The growth was on the posterior aspect of the right nympha and, though noticed but four months previously, had already ulcerated. It was amputated by the cautery. Two years later the woman developed a mammary cancer while nursing a child. Three years later she was found to be suffering with an epithelioma of the cervix. A case of carcinoma of the gland of Bartholini was reported by Schweizer. ⁹⁵_{B. 44, H. 2} The tumor was seated in the right labium majus, and was as large as a hen's egg. After removal the growth returned in the inguinal glands, requiring a second operation. A cancer of the vulvo-vaginal gland, forming a tumor the size of a hen's egg, was also described by Schweizer. ²_{Aug. 20}

Cysts.—Cysts of the female genital tract have been classified by Keating, ⁴⁵¹_{June} who also describes a cyst, the size of a hen's egg, which involved both the labia minora and the under surface of the

clitoris. The cyst, after removal, was found to be multiple. The cavities contained yellowish, creamy material, consisting of cholesterine crystals, *débris*, granular matter, fat-globules, and a few lymphoid cells.

Pilliet⁷_{No. 12} exhibited the specimen of a cyst of the gland of Bartholini, pointing out an accompanying sclerosis of the gland which resembled the sclerosis of other glands, as, for example, the submaxillary, after ligature of its excretory canal or its obstruction by a calculus. Doran²_{Nov. 4, '92} notes a case of unusually large cyst of Bartholini's gland, which he removed. He advises extirpation of the cyst, on account of the troublesome sinuses which often follow partial operations. A smaller cyst is described by Tuttle.¹⁰¹_{Dec., '92} A cyst of the canal of Nuck, presenting itself upon the right labium majus, was reported by Fortin²⁰³_{Mar. 1} before the Medical Society of Rouen. It had been twice punctured, but refilled and was finally extirpated.

Monnier⁷_{Dec., '92} removed a multilocular colloid cyst of the labium minus, which hung from the left side of the vulva by a pedicle, consisting of the lesser labium and a part of the prepuce of the clitoris. It was the size and shape of a large testicle. The skin covering it resembled the ordinary integument of the labium. It was removed by resection of the labium minus. The cavity was filled with greenish, colloid material. The cyst was probably of the mucous type, and had undergone colloid degeneration.

Hernia.—Hernia into the labium majus is a rare condition. Berger¹⁴_{Oct. 30, '92} reports an example which came under his observation. It was situated in the left labium majus and encysted. Similar cases were referred to by Reclus, Routier, and Tuffier.¹⁴_{Oct. 30, '92} Terrillon¹⁴_{Nov. 6, '92} reports two cases of tumors occupying the labium majus which proved to be herniæ, and which were treated by radical operations. Vanheeuverswyn²_{Sept. 16} operated upon a patient suffering from intestinal obstruction, who had been subject to right inguinal hernia for ten years. She had been seized with severe pain radiating into the thighs, the hernia had become very tender, and the right labium majus assumed the size of an orange. The hernia of the labium was relieved by incision over the long axis of the tumor, and, after closure of the peritoneum with catgut, the pillars of the ring were sutured.

Vulvo-Vaginitis.—Martin, of Philadelphia,²⁴⁵_{Nov., '92} believes that

there are two distinct forms of vulvo-vaginitis in children,—the catarrhal or irritative, and the gonorrhœal. The former, which is more frequently met with, rarely invades the urethra, often spares the vagina, produces slight local symptoms, no general disturbance, is non-contagious, does not excite purulent ophthalmia, and yields readily to mild antiseptic and astringent lotions when the dyscrasia and the local exciting cause are removed. Gonorrhœal vulvo-vaginitis invades the urethra, vagina, and even the endometrium, causing enlargement of the womb and cramp. There is fever and local pain. The discharges are highly contagious, and the disease may be conveyed by the fingers or clothes of the child or by wash-rags or bathing-water. The disease may be cured in three to five weeks; but if treatment is neglected, the inflammation may become chronic, and is then of indefinite duration. The treatment recommended consists in washing out the vagina by means of an irrigator and a soft-rubber catheter, first with a 1-per-cent. solution of bicarbonate of soda and then with perchloride of mercury (1 to 10,000). After each irrigation, which is repeated twice a day, the external parts are to be dried with absorbent cotton-wool, dusted with iodoform; or, if that is irritating, with zinc oxide and a thin wad of absorbent cotton placed between the labia. The discharges contain micrococci apparently identical with the gonococci; and if such organisms are found, the case should be treated as one of gonorrhœal infection, though it would not be safe to attach much weight to their presence as evidence in medico-legal cases. The source of infection cannot, as a rule, be traced. In one case, in which there was not the slightest history of contagion, the discharge, when introduced into the urethra of a man, produced well-marked gonorrhœa complicated with orchitis and followed by gleet. A careful bacteriological study of vulvo-vaginitis has been made by Berggrün,¹⁵⁸_{A.16,B.1.5,6} according to which he divides the disease into three forms: (1) specific or gonorrhœal; (2) purulent; (3) catarrhal. Rocaz⁷⁸⁰_{Sept.} reports three cases, and urges the use of antiseptic and astringent injections in the treatment of the disease.

URETHRA.

The numerous and diverse causes of the vesical and urethral irritation in women, so constantly referred to by gynæcologists as accompanying uterine lesions, has prompted Mary Putnam Jacobi,

of New York, ¹⁰⁴_{Dec. 17, '92} to report a group of cases before the Philadelphia County Medical Society, illustrating the various causes and their treatment.

Herman, ²⁸_{June 1}, refers to the fact that about one-half the patients who consult a specialist for the diseases of women complain of pain in passing water. This symptom is of varying severity. A little scalding may be caused by the urine being concentrated, is present in pelvic inflammation, and occasionally accompanies gonorrhœa. Painful micturition depends upon local disease situated either in the meatus urinarius, the urethra, or the bladder. The following conditions must be excluded: urethral caruncle; chronic congestion of the urethra; abscess of the urethro-vaginal septum; suppurating cyst of the urethra; a tender, purple condition of the urethral mucous membrane. The most common of these conditions is that of urethral caruncle, which may easily be diagnosed by inspection. Should the urethral orifice be found healthy, a careful examination is imperative.

Blennorrhagic contraction of the female urethra has been described at length by F. L. Genouville, ²⁶⁶_{Nov., '90} who also compared the urinary organs of the two sexes. He believes that contractions of the urethra are extremely rare in the female, and are dependent upon two principal causes,—infection and traumatism. The symptoms vary from difficulty in micturition to complete retention. The condition may occasion, in the female, a cystitis or pyelonephritis analogous to that which may occur in the male. The treatment consists in gradual dilatation.

The treatment of blennorrhagic urethritis, according to Rollet, of Lyons, ⁷⁸_{May 20} consists preferably in irrigation of the urethra with 1 or 2 litres (quarts) of an antiseptic solution, followed by the introduction of a urethral suppository of iodoform, ichthyol, or salol, to which a little cocaine has been added. The solutions used for the irrigation are: nitrate of silver, $\frac{1}{100}$ to $\frac{5}{100}$; ichthyol, $\frac{3}{100}$; resorcin, $\frac{5}{100}$; corrosive sublimate, $\frac{1}{2000}$; permanganate of potash, $\frac{1}{250}$. These solutions may be used safely in the female urethra, it being much less sensitive than that of the male. For the carrying out of the procedure Rollet describes two catheters, one of metal and the other of red rubber. The metallic instrument terminates in a conical button the diameter of a No. 21 sound, behind which are the fenestra. After washing out the urethra and inserting the

suppository, the vagina should be antiseptized and infection guarded against by the introduction of an antiseptic tampon.

Congenital Dilatation of the Urethra.—Baker, of Boston, ¹⁵¹_{July} reported a case of congenital dilatation of the urethra upon which he operated successfully. The urethra readily admitted the little finger, and was shortened one-third or one-half; there was no well-marked vesical neck, and the patient was suffering with urinary incontinence. Baker performed two operations a few months apart. He first attempted to close in the meatus urinarius by lifting the lower border of the hymen over the lower border of the meatus after the necessary denudation. This enabled the patient to hold her urine pretty well except when jolted. At the second operation he narrowed the urethral canal by cutting out a strip three-eighths by one inch from the urethro-vaginal septum, the upper part of the incision involving the vesical neck. The edges were then brought into apposition. Union was complete, and the patient subsequently had complete control. Himmelfarb, of Odessa, ⁹⁵_{R. 44, H. 2} operated upon a 17-year-old girl for the relief of incontinence of urine of urethral origin. Several surgical operations had been performed without result. Himmelfarb lengthened the urethral canal by the formation of two flaps from the mucous membrane surrounding the meatus, and uniting these in front. The urethra was then narrowed by the excision of a strip of tissue as deep as the mucous coat, and the raw surfaces united by suture. The urethral canal was then bent upward by the excision of a wedge-shaped piece of tissue above the mouth of the urethra and sutured, drawing the meatus up under the symphysis. A good result was obtained.

An ingenious operation for the relief of incontinence of urine has been described by Albarran. ²⁶⁶_{Oct., '92} It is executed as follows: A longitudinal incision is made, extending from the clitoris to the upper margin of the meatus, and extended to the right and left, encircling the external orifice. At the lower border of the meatus an incision is made right and left tangent to the circular incision, permitting the separation of two flaps, triangular in shape, on either side of the vestibule. The incision surrounding the meatus is made three millimetres from the orifice, thus allowing enough tissue for the nutrition of the urethra. The flaps are dissected loose and elevated with tenaculæ, and the urethra loosened from

the surrounding tissue up to the neck of the bladder. The meatus is then seized in a forceps and drawn downward toward the vagina, exposing the upper wall of the urethra. The upper half-circumference of the canal is then sutured with silk, in such a manner that a portion of its upper wall is inverted. This being finished, the meatus is drawn up below the clitoris and the lateral flaps brought in apposition below it. One suture fastens the upper border of the meatus and the lower margin of the clitoris. The free edges of the flaps beneath are then united by interrupted sutures. Albarran describes a case operated upon by this method,—that of a woman, 49 years of age, who had borne four children. The incontinence of urine had first appeared after the performance of Kraske's operation for the relief of a syphilitic stricture of the rectum. The urethra readily admitted the little finger. She had been treated for a long time unsuccessfully by electricity. The operation was completed by an anterior elytrorrhaphy. A sound was left in the bladder for one week. The immediate result was perfect, but the incontinence finally returned.

A case of incontinence was described before the Geburtshilfliche Gynecologische Gesellschaft in Wien, February 7th,⁵⁷ by Zuckerkandl. The patient was 54 years old, and suffered from the constant escape of urine in the reclining position, as well as in walking. The condition was due to a loss of tone in the tissues from senile involution of the genitals and shortness of the urethra. For the cure of the condition Zuckerkandl made an oval incision around the external orifice, and dissected the urethra loose up to the neck of the bladder. The urethra was then twisted from left to right 360 degrees and the meatus fixed with a row of sutures. The result was a complete relief from the incontinence.

Urethral Caruncle.—Cases of urethral caruncle have been reported by Tuttle, of New York,¹⁰¹ Dec., '73; Irwin,⁴⁸ Mar., and Herman, of London.²⁸ Herman, in analyzing 41 cases, notes that 2 occurred in women under 20 years, 1 between 20 and 29, 6 between 30 and 39, 15 between 40 and 49, 14 between 50 and 59, and 3 between 60 and 69. All consider the excision with the knife, scissors, or Paquelin cautery the best treatment.

Stricture.—Stricture of the female urethra is a condition of great rarity, not more than sixty cases being recorded in the entire literature of the subject. Genouville,² Feb., '11 regards gonorrhœa as the

most common cause. Traumatism during labor may give rise to the condition, and some writers have described a senile form of stricture which they attribute to thickening and induration of the urethro-vaginal cellular tissue. The symptoms vary from simple discomfort in micturition to complete retention. Lesions of cystitis may be produced and pyelonephritis result. Gradual dilatation is the best mode of relieving the condition. Total urethrotomy, or division of the whole thickness of the urethro-vaginal wall at the seat of stricture, is advocated as presenting a better security against renewal of the stricture than simple urethrotomy. Loubeau²_{June 10} reports a case of complete cicatricial stricture in a patient aged 52 years. The condition had followed the removal of a caruncle by cauterization. The dense, fibrous structure extended one-fifth of an inch up into the urethra, and the finest bougies could not be passed through it. Loubeau introduced a sharp bistoury with its cutting-edge uppermost, cut into the stricture, and then divided the anterior wall of the canal to the extent of an inch. The edge was then turned down and the floor of the urethra incised. Urine at once escaped freely. A bougie was passed every fifteen days after recovery.

Two cases have been described by Meisels,³³⁸_{Sept. 10}—one a cicatricial stricture in the middle of the urethra, with a granular condition of the mucous membrane. The patient had a uric-acid diathesis. The second was probably the result of blennorrhœa.

Calculus.—A specimen of stone from the urethra was exhibited before the British Gynæcological Society by Parsons.⁴⁹_{Nov. '98} It was fawn-colored and pear-shaped, weighing 68 grains (4.52 grammes). The calculus was composed of uric acid, and occurred in a woman aged 40 years. It was found lying loose just within the urethra, and interfered with micturition by blocking the passage as a ball-valve. The stone was removed by an incision, under cocaine, through the vaginal wall into the urethra. Bisdom⁹⁹⁸_{June 10} reports a case in which he removed a uric-acid stone from a girl 15 years old. It was found in the urethra, and had occasioned incontinence of urine for six months.

Tumors.—Dürr¹⁸³_{Mar. 10} considers polypi of the female urethra rare conditions, and usually about the size of peas, or smaller. Generally, they are dark or pale red, with smooth surface, and grow from a broad base or are pedunculated. They bleed easily, are

very sensitive, and occasion great pain in urination. The treatment consists in the excision of the growth, with energetic cauterization of the base with nitric acid or lunar caustic.

Foreign Bodies.—Rodé⁵⁵_{Sept. 2} reported the case of a woman, aged 28 years, who had introduced a hog's penis into her urethra. It was removed by an incision into the urethra; the patient, however, died in five days, from septicæmia. Morris¹⁹⁹_{Apr.} removed a hair-pin from the urethra of a girl aged 17 years. It had been introduced two years previously, and had slipped from her fingers. One prong of the hair-pin had passed through the urethra into the vagina. On removal it was found to be greatly encrusted with calculous deposits.

Prolapse.—A case of prolapse of the urethra was reported by Ashton.⁷⁶⁰_{Oct. 29, '92} Van Ness, of Omaha,¹⁰⁸_{Aug.} described a new operation for the relief of this condition, which is much simpler of performance than the button-hole operation of Emmet, and, he claims, quite as satisfactory. His method is as follows: Having exposed the anterior vaginal wall by retracting the perineum with a Sims speculum, a sound of sufficient size to distend the whole urethra is introduced. This readily forces the prolapsed membrane back into place, the pressure being exerted along the whole length of the urethra. Holding the sound firmly in place, a small quantity of tincture of iodine is injected, with a fine hypodermatic needle, into the connective tissue between the vaginal and urethral mucous membranes, at various intervals. A few catgut sutures are then introduced with a fine needle, passing them from the vaginal mucous membrane directly down upon the sound, their points of entrance and exit being about one-eighth of an inch to either side of the median line. The stitches should be tied sufficiently tight to bind the vaginal and urethral mucous membranes firmly together in the relations in which they have been brought by the passage of the distending sound. The irritant injected into the connective tissue sets up sufficient inflammation to cause the membranes to firmly adhere, while the sutures will hold them together until this has taken place. Such an operation may be performed, under cocaine, in the physician's office.

Ballantyne³⁶_{July} refers to the occurrence of prolapse in the urethræ of newborn infants in which there appears to be a redundancy of the urethral membrane.

BLADDER.

Pousson ¹⁸⁸_{May 21} records three cases of urinary incontinence in the female, the pathological condition leading to which was obscure. All were young women and very nervous. One case was benefited by the application of electricity. In one case the patient voided her urine at the same hours every day. Upshur ⁸¹_{Apr.} refers to the reflexes more commonly found in women as causes of irritable bladder. Pain on micturition is a common symptom complained of by women whom the gynæcologist meets in his practice. Gow ¹⁰⁷⁷_{Aug. 2} analyzes the causes which may produce the disorder. These may be divided into two groups: First, those peculiar to women, such as urethral caruncle, perimetritis, inflammation of the vestibule involving the urethral orifice or the presence of venereal sores in that location, and as a neurosis. Secondly, those causes common to both sexes, such as urethritis, cystitis, the passage of highly-concentrated acid urine, and the presence of calculi in the bladder.

Dakin, ¹⁰⁷⁷_{Nov. 20, '98} in an excellent paper upon the diagnosis of disorders of micturition, urges the examination of the bladder in these cases. The sensitiveness of the organ is gauged by vaginal examination. A gentle attempt should be made to pass a large sound, well oiled and warmed, in order that the bladder be measured and the elasticity and sensitiveness estimated. The mucous surface is at the same time explored and any foreign body detected. Stricture of the urethra can be made out at the same time. Should a foreign body or the suspicion of a growth be detected, the urethra can be rapidly dilated and the bladder examined with the little finger. The abdomen should also be carefully examined, and the condition of the kidneys investigated.

Cystitis.—Pépin ⁹⁹⁶_{Aug. 25} refers to the retroversion of the gravid uterus and prolonged labor as causes of cystitis attended with exfoliation of the vesical walls. The immediate cause in these cases is the prolonged pressure of the child's head. The gangrene of the walls, he thinks, is due to the extreme acuteness of the inflammatory symptoms.

Madden ¹⁰⁷⁷_{July 19} alludes to the delay in complying with the call of micturition, to which women are so generally trained, as a very common cause of cystitis. In regard to its treatment, he believes the best results, in acute cystitis, are to be obtained by the admin-

istration of opium and belladonna by rectal suppository, or of Dover's powder, to relieve the pain and tenesmus; absolute rest in bed, frequently-repeated warm hip-baths, and plenty of diluents. In chronic cystitis, where the diseased membrane secretes the thick, gelatinous exudation already alluded to, great relief may be afforded by washing out the bladder with a weak carbolized or boric-acid injection or with plain warm water. This may be regarded, however, merely as an adjunct to the more active local treatment required. The urethra should be freely dilated and a solution of boro-glycerin or glycerin of carbolic acid applied directly to the diseased membrane. Where these methods fail, recourse may be had to the formation of an artificial fistula, through which the urine drains away as rapidly as secreted, affording the diseased bladder an absolute rest. Madden believes, however, that just as good results may be obtained by full dilatation of the urethra with the dilator. The fact that a woman may have cystitis and yet not pass water often is referred to by Tuttle,¹⁰¹ who presents a case having this peculiarity. The condition was due, he believed, to displacement of the uterus, and was much relieved by simple support of that organ by means of a tampon. Heisler¹¹² refers to a case of cystitis probably caused by the ingestion of potassium chlorate in 5-grain (0.32 gramme) doses, repeated four times daily, and taken in concentrated solution.

Croom¹⁵ advocates the use of corrosive-sublimate solution, 1 to 3000 or 1 to 4000, by injection into the bladder three or four times daily. He believes that the bladder should be distended each time to the full extent the patient can bear, so as to bring the solution into contact with the whole of the corrugated mucous membrane, as well as to stretch the muscular fibres to their utmost extent. Such treatment must be persisted in for weeks. For obstinate cases he strongly recommends the old procedure of kolpocystotomy, allowing the bladder to drain through the fistulous tract for from six weeks to two months. He reports three cases so treated with excellent result.

Lobinger⁷² objects to the button-hole operation, but advises irrigation of the bladder, carried out under strict antiseptic technique. The solution used is made by dissolving a powder composed of boric acid, 1 ounce (31 grammes); sodium biborate, 4 drachms (16 grammes); sodium chloride, 2 drachms (8 grammes),

in a few ounces of boiling water and diluting with a pint and a half ($\frac{1}{2}$ litre) of cool water. The external genitals of the patient having been cleansed with bichloride solution, 1 to 1000, a new No. 10 soft-rubber velvet-eye catheter, previously sterilized, is introduced into the bladder, and a portion of the urine allowed to run out, that the air in the catheter may be excluded. The catheter is then connected with the syringe and the solution allowed gently to run in. When the patient begins to feel a sense of slight distension, the syringe and catheter are disconnected and the bladder allowed to partially empty itself. The patient must remain in bed at absolute rest until cured.

Verhoogen, of Brussels,²³⁶_{Sept.} recommends the use of nitrate of silver, in 1-per-cent. solution, in the treatment of chronic cystitis. Where this is not followed by a cure, he advises the curettage of the bladder, followed by the application of iodine, applied on a bit of cotton. He reports the results of this treatment in seven cases.

Calculus.—Radecki²¹_{June 17} removed a vesical calculus (*per urethram*) which had formed around a crochet-needle, introduced into the bladder six years previously. The stone was of oval shape, and eleven centimetres in its greatest diameter. Ferguson³⁶_{Mar.} reports several phosphatic calculi which were passed through the urethra. The largest one had formed around a silk ligature with which he had ligated the broad ligament, one year before, in an ovariectomy. Repelin²¹¹_{Dec., '92} described a soft calculus removed in pieces through the urethra after dilatation with bougies.

Homans⁹⁹_{Apr. 27} reported two cases of urinary calculus. In one there was a solid, calcareous mass, felt upon examination, attached to the right side of the bladder-wall. Upon removal with the lithotomy forceps, the fragments resembled very closely spicula of bone. The second case was that of a large calculus and a large vesico-vaginal fistula. The fistula had resulted from a previous removal of a stone by lithotomy and the non-union of the wound. The fistulous opening was enlarged and a hard, rough, oval stone removed, about an inch and a half by an inch large. The wound was then sutured and the bladder drained with a self-retaining catheter, and union resulted. Jagganath, of Jamoo, Kashmir,²³⁹_{July 1} removed a large stone by litholapaxy, the fragments weighing $7\frac{1}{2}$ drachms (29 grammes). Aubert²¹¹_{Nov. 8, '92} removed a stone by hypogastric incision which had formed around a pin. Other cases in

which the calculi were removed by lithotomy are described by Richardson,⁹⁹ Tait,⁴⁰ Rogers,⁷⁴ and Mankiewicz.⁴¹ The treatment of urinary calculus in the female has been discussed by Desnos.²² He regards dilatation of the urethra as easy of execution and free from danger to life. The possible subsequent incontinence of urine is a drawback to its selection. The crushing of the stone is usually easy, and after the irrigation of the bladder with antiseptic solution the patient may be considered definitely relieved. Vesico-vaginal or hypogastric lithotomy is in general easy to perform. The incision should be exactly in the median line and not too close to the urethra, as reunion is more difficult at that point. Immediate suture should be practiced, and the mucous layer of the bladder not included in the stitch. The hypogastric incision should be reserved for voluminous calculi, except in the case of virgins.

Foreign Bodies.—A number of foreign bodies have been removed from the bladder. Loumeau¹⁵⁴ removed an earthen pipe-stem, Aubert²¹¹ a crochet-needle, Repelin²¹¹ the tube of an injector. Occlusive pessaries introduced with a view to prevent conception, and which found their way into the bladder, have been removed by Mitchell¹⁰⁶ and Lohnstein.² Hair-pins removed from the bladder have been reported by Guinard,⁷ Aubert,²¹¹ Hayes,²⁰⁰⁹ Smith,¹⁹⁹ Viers,¹⁹⁹ and Warszawski.¹⁰⁹

Rupture.—Rupture of the bladder has been treated in comparatively few instances by coeliotomy and suture. Marsh, of London,⁶ records a case of a woman who had been kicked in the abdomen and presented herself for relief three days later, stating that she had passed only a teacupful of urine since her rough usage. Two ounces (62 grammes) of bloody urine were drawn from the bladder by catheterization; the instrument then passing beyond the normal distance, evacuated a large quantity of urine mixed with blood. The abdomen was considerably distended, and dull on percussion. Coeliotomy was performed eighty hours after the receipt of the injury, the peritoneal cavity emptied of blood and urine, and a ragged tear in the bladder, situated just behind and below the fundus, two and a half inches long, was closed by fine-silk sutures. The peritoneum was flushed out and the abdominal wound closed. The patient bore the operation well, but died, the next evening, of peritonitis. Post-mortem

examination showed that the retro-peritoneal tissue was sodden with urine. Lennox⁸⁴⁶_{Aug.} operated upon a woman, twenty-three days after labor, for supposed septic peritonitis. On opening the abdominal wall a large quantity of fluid escaped, which proved to be urine. He found, on examination, a rent in the anterior wall of the bladder, near the symphysis pubis, about an inch in length. The edges of the tear were freshened and united. The peritoneal cavity was then opened and flushed, and the abdominal incision closed with drainage. The patient made a good recovery.

Tuberculosis.—This condition, according to Strümpell, is four times as common in the female as in the male. Paton⁴⁵¹_{Aug.} urges that cases of intractable cystitis which seem to be made worse by local treatment should be examined carefully for tuberculosis, especially should bright blood appear in the urine. He calls attention to the urethral pain which is generally described by patients as of a throbbing character. The urine is usually limpid, of a pale-yellow or straw color, and at times of a marked hyperacidity. Frequently countless numbers of bacteria are present. These are of the ordinary fermentative variety, and occasionally the bacillus tuberculosis is found by staining. The centrifugal apparatus should always be used, and, if this fail, inoculation experiments upon guinea-pigs should be undertaken. Where ulcers are visible with the cystoscope, curettage is recommended. The patient may be placed for a few days upon salol to render the urine as innocuous as possible, supra-pubic cystotomy performed, and the surfaces thoroughly curetted.

Cysts.—Dössekker, of Zurich, ¹⁸_{May 16} referring to a case of cyst of the urachus operated upon by Krönlein, states, in regard to the diagnosis: "In the first appearance the urachus cysts are not necessarily in the median line. They may reach an extreme size and be mistaken for ovarian cysts. The cyst-wall consists principally of dense connective tissue in which involuntary muscle-tissue may be recognized. The inner layer is epithelial. The cyst-contents are thin and fluid. As a result of traumatism, excessive bodily motion, etc., hæmorrhages may take place in the cysts with the symptoms which follow torsion of the pedicle of ovarian cysts. The diagnosis is much easier in small cysts."

Tumors.—Smyly reports a case of myoma of the bladder, a very uncommon condition. The patient complained of bloody

urine for two years, frequent micturition, and pain when walking. On digital examination per urethra a polypus larger than a billiard-ball was discovered attached to the fundus of the bladder. The vulva was laid open by lateral incisions and the vesico-vaginal septum divided in the middle line. The growth was then removed with the *écraseur*.

Kürsteiner⁴⁵¹ subjected three vesical papillomata to careful examination to discover the existence of parasitic elements. One of these exhibited the appearances which have come to be regarded as parasites. The bodies were found within the epithelial cells, both those lying deep between the papillæ and those covering them. The parasites were found in groups of varying number, sometimes as many as sixty or eighty being present in a single epithelial cell, at other times only two or three. The individual bodies were rounded or oval, quite small, and composed of an outer zone of a clear and relatively unstained protoplasm with a central mass or nucleus. Beside these groups there were larger or smaller vacuoles within the protoplasm of the epithelial cells, which sometimes occupied the major part of the cell, and by pressing the nucleus aside gave rise to a seal-ring appearance. The author does not assert his conviction that these are really independent organisms, but he urges that it now only remains to investigate the constancy of these appearances and their location.

Instruments.—Stimpson¹⁹_{Dec. 17, '92} believes that the straight tube is preferable for the catheterization of the female bladder. He uses a soft-rubber catheter stiffened for introduction with a wire. Cadogan-Masterman²⁶_{Nov. 1, '92} devised a vaginal urinal for the relief of a case of incontinence of urine due to sphincter paralysis occurring in a paraplegic patient. The apparatus consisted of a piece of soft-rubber tubing, four inches long and one inch calibre, to one end of which was fitted a boxwood knob having the shape of half an egg. The other end of the tube was closed with a similarly-shaped knob, having a small bone tube for the attachment of a yard or two of quarter-inch rubber tubing. Opposite this small tube an oval opening was cut into the side of the large one. The large tube was inserted into the vagina, with the oval aperture just under the urethral orifice, while the rubber tubing was arranged to empty into a vessel placed under the bed. The apparatus allows considerable range of motion.

URETERS.

Simon, of Heidelberg, sounded the ureters twenty years ago, by dilating the urethra, passing the finger into the bladder, feeling the openings of the ureters, and then introducing a sound. A number of years after, Pawlik described a simpler method of procedure. Kelly, of Baltimore, in recent years has contributed more than any one else to our knowledge of the ureters and the pathological changes to which they are subject. It is apparent that diseases of the ureters will, for a long time to come, be exceedingly difficult of diagnosis, and that the surgical treatment of them will be possible to only a few, and will remain in their hands. Kelly has shown¹⁸⁸ that the ureters can be palpated much more extensively than has ever been done. Thus, in addition to palpation of that portion which can be reached from the vagina,—that is, until they pass beneath the broad ligament,—he also claims to make them out per rectum, when enlarged, as they pass up over the posterior pelvic wall, and when of normal size, “by introducing a urethral catheter through the urethra and bladder into the ureter, and carrying it up to or over the brim of the pelvis.” The catheter, with the displaced ureter, can be easily palpated through the rectum, and, though less distinctly, even through the anterior abdominal wall.

By catheterization of the ureters it is feasible to obtain the urine from each kidney isolated. The presence of stricture of the ureter can be demonstrated, and also a possible result of stricture which Kelly calls hydro-ureter. Which kidney is diseased and how much work the sound one does can be ascertained.

The method of catheterization of the ureters followed by Kelly¹⁸⁸ is as follows: All the urine in the bladder is drawn off and put to one side, then the bladder is distended with 150 to 200 cubic centimetres (5 to 7 ounces) of a methyl-blue solution. It is now evident that if the catheter enter the ureter in the catheterization, and clear urine is discharged by the catheter, it does not come from the bladder. The usual method of introducing the catheter is by retracting the posterior vaginal wall and introducing the instrument into the bladder, when, by turning its point forward, the introduction is accomplished by watching the play of the point of the catheter over the anterior wall, as it seeks the ureteral orifices in the ureteral folds described by Pawlik. The normal

relations of the ureteral orifices are distorted by neighboring inflammatory trouble and neoplasms. In a case of hæmaturia, where deep-red urine was removed from the bladder, due to the presence of large numbers of red blood-corpuscles, a catheter was introduced into each ureter. From one catheter red drops, apparently of pure blood, were discharged at intervals, while from the opposite catheter clear urine flowed. Upon mixing the two a fluid was obtained of the same shade of red as that obtained from the bladder. In another instance, Kelly demonstrated a tight stricture posterior to the broad ligament and a hydro-ureter above. He introduced a sound into the ureter, and, cutting down upon it in the vault of the vagina, just in advance of the cervix, laid the ureter open for about one centimetre and sutured it to the vaginal mucosa by means of a delicate needle and fine silk, making an artificial uretero-vaginal fistula. From this position, through the fistula, he dilated the stricture at several sittings, finally even carrying in uterine dressing forceps. The stricture overcome, the edges of the fistula were denuded, and the opening closed by silk sutures without difficulty. On another occasion he was enabled to correct a diagnosis of kidney-tumor by drawing the same quantity of normal acid urine from each ureter, and demonstrating that the catheter on the affected side passed behind the tumor instead of forward into it. A more careful examination proved the tumor to be a leucocythæmic spleen. He describes a ureteral sound for examining for calculi, and ureteral bulbous bougies for dilating strictures.

Wells⁴⁶ has given considerable attention to the exploration of the ureters. He mentions five methods by which the catheter may be passed: (1) by incision of the bladder and passage of the instrument by sight; (2) by touch through the dilated urethra; (3) by touch with the finger pressed against the anterior vaginal wall; (4) by the catheter passed into the bladder, the patient being in the dorsal position and the perineum strongly retracted, and its position and course being determined by the elevation of the vaginal mucous membrane; and (5) by the guidance of the electric cystoscope. The first method is rarely justifiable; the second of historical interest only. In using the third and fourth the bladder is first distended with 5 ounces (155 cubic centimetres) of boric-acid solution.

Periureteritis.—Reed, of Cincinnati, ⁵⁴⁶_{Dec. 15, '92} reports the case of a woman who had suffered for three years with pain in the right loin following a miscarriage. She evidenced severe pain when touched at a point just in front and a little to the right of the uterus. The ureter could be easily recognized in this position. Failing to catheterize it with a small-sized linen catheter, Reed freely incised the vesico-vaginal septum and brought the ureteral orifices into view. On the left side the urine escaped from the ureteral orifice in jets, while upon the right side there was a gradual ooze from a point just back of a small mass of granulation tissue. The granulation tissue was curetted away and a catheter introduced into the orifice of the ureter, followed by the escape of urine containing pus and epithelial cells, with a few particles of sand. The ureter was flushed with sterilized water, after dilatation, and a catheter then passed to the pelvis of the kidney, and allowed to stay there until the stitches for the closure of the vesico-vaginal wound had been inserted. The patient made a good recovery.

Stricture of the ureter, while a rare condition, has been described by Genouville. ²¹²_{Apr. 10}; ¹⁴_{July 6} Reed ⁵⁴⁶_{Dec. 15, '92} reports a case caused by traumatism in applying the clamp in vaginal hysterectomy. For the relief of the condition he was obliged to remove the kidney on the corresponding side.

Jaksch ²²_{Aug. 16} reports the case of a woman, aged 45 years, who had for a long time suffered from great pain in the region of the kidneys. The urine passed was cloudy, and contained spiral bodies resembling the spiral exfoliations from the lungs. He considers the condition a chronic irritable condition of the ureter, associated with lithiasis.

Calculus.—Doyen ⁵⁷⁷_{Dec., '92} reports a case in which twenty-four calculi were removed from the ureter of a woman who had complained of severe abdominal pain. The stones were removed by incision through the vagina. Another case of ureteral calculus is described by Dubourg. ¹⁸⁸_{July 16}

VAGINA.

Absence of the Vagina.—Sangree ¹²¹_{July} reports the case of a child, aged 2 years, who was brought to him by her mother on account of “not being formed as other girls.” There were, on examination, well-formed labia majora and fairly well-formed labia minora.

The meatus urinarius opened normally, but below that was simply a smooth, unbroken surface, extending to the perineum. No digital rectal examination was made, on account of the child's tender age. A second case of absence of the vagina is reported by Albertin.¹¹²_{Sept.} In this case the vulva was normally formed; but upon separating the labia minora a membrane was observed, obliterating the vagina and presenting a slight depression, with a sort of central cicatrix resembling the umbilicus. Exploration revealed the absence of the uterus and the presence of the right ovary. A transverse incision was made, and the rectum and bladder were separated to a height of ten centimetres. The wound was kept open by the insertion of a pessary covered with iodoform gauze. The cavity contracted markedly, however, measuring only six centimetres after eight months.

A case of partial absence of the vagina is reported by Plasencia¹⁵⁴_{Nov. 15, '92} in a girl, aged 17 years, who had never menstruated, but had experienced severe colicky pains, at monthly intervals, for three years. She had been married for one year. Copulation was impossible. She developed severe tenesmus, and a tumor was evident in the abdomen, resembling pregnancy at term. The conformation of the external genitals was normal, but the vulvo-vaginal orifice was obliterated by a dense fibrous tissue. Plasencia incised the membrane transversely, after having introduced a sound into the bladder and a finger in the rectum. The incision was deepened by blunt dissection until the collection of fluid was nearly reached, when a trocar was introduced and about 3½ litres (quarts) of dark, chocolate-colored fluid drained off. Potter¹⁰⁷⁷_{June 28} recommends the making of large incisions in cases of atresia with retained menstrual blood, enlarging the opening subsequently with scissors and by tearing and allowing the fluid to slowly drain away, without aiding its escape by hypogastric pressure or washing.

Vaginismus.—The pelvic pain of females is so readily explained by disorders of the uterine appendages that practitioners have their attention frequently diverted from other anomalous conditions. Strong⁹⁹_{Nov. 24, '92} refers to hyperæsthesia of the vaginal orifice as a cause of reflex pelvic pain, and reports three cases in which the pelvic symptoms were cured by treatment directed to the relief of the hyperæsthesia. The treatment which he proposes

and successfully carried out in the reported cases consists in the removal of the hymen and underlying subcutaneous tissues, extending the dissection down to the outside skin, including all the portion lying between it and the fourchette. The perineal muscles are then divided until the vulva can be widely stretched, the incision varying from one-half to five-eighths inch in depth. The edges of the mucous membrane and the skin are then approximated, as are also the cut surfaces of the perineal muscles, leaving only a small portion to heal by granulation. Convalescence is usually complete in a week. A glass plug which Strong has modified is worn both day and night at first, and afterward only at night.

Champneys¹⁰⁷⁷_{Nov. 16, '92} describes three cases of vaginismus in married women, one of whom bore three children without relief of her condition, and finally separated from her husband. A second case was cured by the application of cocaine to the vagina *ante coitum* for a fortnight. In the treatment of vaginismus Champneys believes that separation of husband and wife for a few months will often act well, particularly if the condition be due to the husband's sexual incompetency.

Lvov³⁷⁸_{May 11} makes a distinction between cramp-like contractions of the sphincter cunni muscles occasioning vaginismus and that of the muscle-fibres of the deeper portions of the vagina. This deep contraction occurs in muscle-fibres which are connected with the levator ani, and has been described by Hildebrand, being designated as Hildebrand's disease. The author describes a case in which the finger introduced into the rectum caused almost complete disappearance of the cramp-like contraction. Lvov states that the best results are to be hoped for from electric and hypnotic treatment.

Pruritus.—A case of pruritus of the lower part of the vagina has been described by Gow.¹⁰⁷⁷_{Aug. 2} This portion of the vagina may be regarded as sharing pruritus quite as frequently as the vulva. Gow's case improved upon a mixture containing bromide of potassium and belladonna and the application of black-wash externally.

Vaginitis.—The subject of specific vaginitis has been considered by Cecil.²²⁴_{Apr. 8} It is his belief that licensed prostitution with governmental inspection in a systematic and regular manner would

limit the spread of gonorrhœa better than any means yet suggested. Regarding treatment, he believes the best results to follow the use, in the acute stage, of a mild solution of bichloride of mercury (1 to 10,000). After the acute symptoms have subsided, the strength of the douche is increased to 1 to 2000 or 3000, administered once or twice in the twenty-four hours. He lays stress upon the administration of the douche with the patient in the dorsal position with elevated hips. After the douche a tampon of iodoform gauze is placed against the cervix uteri. Should urethritis accompany the vaginitis, a pencil of iodoform is introduced into the urethra twice daily. Collyer²³_{Sept.} advocates the use of peroxide of hydrogen in the treatment of specific vaginitis, using a full-strength solution or diluted with lukewarm water. After thoroughly washing the membrane with this solution, the vagina is coated with a nitrate-of-silver solution ($\frac{1}{2}$ drachm to 1 ounce—2 grammes to 31 grammes), and a strip of iodoform or aristol gauze is introduced. The employment of methylene blue and methylene violet in the treatment of blennorrhagic vaginitis has been urged by Verchère²²_{Sept. 18} and Aulnay.¹⁴_{Aug. 27}

The solution used by Verchère consists of: R, Methylene violet, 2 drachms (8 grammes); alcohol, 4 drachms (16 grammes); potash, 4 grains (0.26 gramme); water, 10 ounces (310 grammes). After cleansing the vagina with a cotton mop and some sublimate solution 1 to 1000, the cavity is filled as much as possible with cotton plugs wet with the methylene solution. The vaginal outlet is then stopped with dry cotton to prevent the oozing of the liquid. After forty-eight hours the dressing is removed, the vagina washed with sublimate solution, and a glycerin tampon introduced.

Tamponade of the Vagina.—In order that the vagina may be evenly filled in the application of tampons, and for more perfect asepsis, Liebersohn³⁹⁹_{Aug. 26} describes a method which he has found efficacious. The patient is placed in the dorsal position and, after careful disinfection of the vagina and outer genitals, the vulva is covered with a piece of iodoform gauze the size of an ordinary pocket-handkerchief. The upper edge of the gauze is held upon the symphysis with the left hand, and with the right index finger the central portion of the gauze is pushed into the vagina, forming a pocket in which pieces of cotton may be successively introduced until the vaginal *cul-de-sac* is uniformly filled. When this is

completed, the ends of the gauze are introduced crosswise into the introitus.

Absorption of Tincture of Iodine by the Vagina.—Repin¹⁹⁷_{July 20} related two cases in which absorption of the tincture of iodine applied to the vaginal mucous membrane occurred. In the first case symptoms of intoxication appeared in six minutes. In the second case the application of iodine to the cervical cavity, in the course of treatment for an affection of the genital organs, resulted in the diminution in size of a goitre.

Lacerations of the Vagina.—Cases of laceration of the vagina from indirect violence have been reported by Ostermayer, of Budapest,⁸⁴⁴_{Jan. 1} and Parakh, of Burmah.¹⁰⁵⁵_{Aug. 1} In Ostermayer's case, a woman, 40 years of age, fell down some stairs while carrying a heavy parcel in her arms. Her abdomen struck upon the edge of one of the steps. She was unconscious for half an hour and afterward complained of great pain. Upon going to bed, she noticed some blood flowing from the vulva. Three weeks later she entered a hospital, when a rent was found extending from the fornix of the vagina obliquely downward for about six centimetres, almost completely through the mucous coat. Parakh's case was that of a 16-year-old girl who fell, striking her abdomen. She complained of no pain, but of a "pulling sensation" in the hypogastrium, and noticed a hæmorrhage from the vagina, which she regarded as her monthly period. Upon examination a tear was found in the anterior surface of the vagina, by the side of the cervix, one and one-half inches long and one-half inch deep. These cases are important from a medico-legal stand-point, showing that rupture of the vagina may be produced by an external blow, which may leave no wound or other indication of its having occurred.

A case of extensive laceration of the vagina has been described⁸²_{Apr. 23} as resulting from connection with a large dog. Lacerations of the vagina by coitus are not common; cases have been reported, however, by Green, of Boston⁹⁹_{Apr. 13}; Mann, of Buffalo⁹_{Oct. 22, '99}; and Sinclair and Munro, of Boston.⁹⁹_{Apr. 13} In Green's case the tear was longitudinal, extending from just within the introitus about two inches along the left latero-posterior vaginal wall. The hæmorrhage was completely controlled by the pressure of a tampon. Mann's case presented a perforation of the recto-vaginal septum an

inch and a half long. By a secondary operation he united the edges by silver-wire sutures and secured union.

Foreign Bodies.—Patru¹⁹⁷ relates the case of a woman, aged 70, who had worn a pessary for thirty years and finally had forgotten its presence. She presented herself for examination with a fetid discharge simulating that of malignancy. The pessary, covered with hard concretions and imbedded in the vaginal wall, was removed in fragments. Some vaginal ulcers resulting were healed by the application of silver nitrate. Bazzanella, of Innsbruck,¹ removed a drinking-glass from the vagina which had been placed there ten years previously by the woman's husband. The glass was removed with small obstetrical forceps.

Cystocele.—Colpo-cystocele, commonly called cystocele, has furnished the subject for a paper by Napier.⁸ He highly recommends the Stoltz operation for the relief of the condition, which is performed as follows: The patient being placed in the dorsal position, with the knees well flexed, and the labia separated by assistants, a sound is introduced into the bladder and the viscus displaced as far downward as possible. The anterior vaginal surface is then seized with a vulsellum forceps and dragged downward. A superficial circular incision varying with the size of the cystocele is then marked out. A large Hagedorn needle, held in a holder, bearing a stout silk thread, is introduced one-half inch behind the meatus, slightly to its right side. The needle is carried round outside the marked line of incision, and the suture is kept as much buried as possible. It finally emerges to the left side of the point of entrance. The denudation is then made with a scalpel, commencing usually at the margin near the meatus, and terminating at the line nearest the cervix. When the tissues are non-cicatricial and loose, the handle of the scalpel or finger will easily separate the greater part. Should hæmorrhage threaten, slight tightening of the ligature by raising the ends of the thread, not drawing on them, controls it. After finishing the denudation the sound is withdrawn from the bladder, and the denuded part is pressed upward and inward. The circular ligature is pulled tight and firmly tied, two or three superficial stitches of catgut being introduced if there be any puckering. The silk thread is removed in ten days.

Tumors.—A cyst of the anterior vaginal wall has been reported by Rochet.²⁵⁶ It occurred in a woman aged 40 years,

and resembled, on gross examination, a cystocele. The tumor was as large as an orange, fluctuating, and had pushed the uterus high up. It was dissected out, and the edges of the mucous membrane united by suture. Netzel¹⁵¹ describes a case of recto-vaginal fibroma, occurring in a woman aged 45 years, simulating rectocele. The tumor measured ten inches in diameter, and protruded from the vulva. It had been growing very slowly for five years, and projecting more and more each year from the vulvar orifice. It was removed, together with a triangular piece of the vaginal mucous membrane, the base of which was about at the mucocutaneous margin. The growth was found to be made up of connective tissue and large blood-vessels, but no muscular fibres.

A case of carcinoma of the vagina involving the inferior portion of the uterus was described by Krafft.¹⁸⁷ The case was relieved by operation. Fenger²⁷ describes a case of primary vaginal cancer of six months' standing, presenting itself as a tumor on the posterior and left walls of the vagina, which was removed by operation. The entire vagina was studded with small tumors and the vaginal portion of the uterus was involved. Fenger extirpated the vagina and removed the vaginal portion of the uterus. A relapse occurred, however, in two and a half months.

Green, of Boston,⁹⁹ records a case of fibromyoma of the vagina, observed in a woman 51 years old. The tumor was attached to the anterior vaginal wall in close proximity to the bladder-wall, but apparently having no connection with it. The growth was removed.

Soft chancres of the vagina are rare. A case has been recorded by Gøerdes.⁵⁵ The patient, a young girl, had been suffering for three or four weeks before seeking medical advice. She complained of extreme pain in the vagina. Coitus had been practiced but twice, five months and five weeks, respectively, before coming under observation. There was much œdema of the labia, and sloughing tissue projected from between them. Upon separating the vulvar cleft, the entire vaginal wall appeared sloughy and smelt gangrenous. The sloughs were separated by forceps and scissors, and the vagina scraped with a sharp spoon till healthy tissue was reached. The original sore was apparently situated on the left anterior wall.

TRACHELORRHAPHY.

Mulheron, of Detroit, ²³_{Mar.} advocates the early suturing of tears of the cervix uteri. At the end of twelve days he exposes the cervix with a Sims speculum, and unites any tears that may exist with silver-wire sutures, previously having vivified the surfaces with a sharp curette. By this means he avoids the subinvolution which follows extensive tears and the pelvic pains which follow the nerve-pinching from cicatricial contraction in the smaller ones. He is joined in his plea by Fraisse. ²⁴_{Apr. 16}

NEW INSTRUMENTS.

Getz ⁵⁹_{Nov. 12, '92} has devised a vaginal irrigating-tube, made of metal, one inch in diameter at its vaginal part and four and a quarter inches long. It is slightly curved antero-posteriorly to correspond with the natural curve of the vagina. The anterior surface is beveled off as the apex is approached, thus allowing the irrigator to be inserted well up in the posterior *cul-de-sac*. The terminal portion is perforated by twenty-four apertures, which equal in their delivery the amount of water supplied by a half-inch pipe. The handle of the instrument, which is narrower, is supplied with a hook for suspending it upon the rim of the reservoir when not in use. The vaginal passage being moderately distended with the irrigator, its mucous folds receive a most thorough cleansing by the large volume of water passing through it.

A new syringe has also been described by Vonder, ⁶_{Aug. 19} with double tubes, one for injection and the other for waste. It has the advantage that suction is made alternately with the douche, thus tending to remove all morbid secretions. The widened end of the vaginal tube plugs the entrance to the vagina; so that astringent or caustic injections may be held in contact with the walls of the vagina as long as desirable.

A forceps for facilitating the operation of trachelorrhaphy has been invented by Carrier. ¹_{Nov. 26, '92} It is provided with three teeth on each jaw, with an eighth-inch grip. These jaws are to be secured to the vaginal portion of the cervix at its base, just before the wounds are sutured, and additional steadiness of the cervix is secured by means of a single tooth in each jaw, an inch from the end. There is also a slot and screw attached to the lower blade, in which a sound passing into the uterine canal can be

secured, the handle of the sound being removed to obviate interference in passing the sutures. The advantages of the instrument are that it enables one to make accurate coaptation of the lips of the wound, furnishes counter-pressure, and prevents tearing of the tissue, which so commonly occurs when a tenaculum is used. Hæmorrhage from the wound is almost completely checked by the pressure which brings the lips in contact with each other. The operator is also enabled to dispense with the services of one assistant.

FISTULÆ.

Three cases in which large vaginal fistulæ were caused by error in diagnosis or neglect have been reported by von Carl Hohenbalken.²_{Aug. 6} The first was that of a woman whose bladder had been opened for stone, the physician mistaking a fibroid in the anterior uterine wall for a urinary calculus. The second case was that of a woman, aged 80 years, who had worn a winged pessary for sixteen years. The pessary dropped out and the woman suffered greatly from incontinence. A fistula admitting two fingers was found communicating with the bladder. Atrophy of the vagina was the immediate cause of the accident, the pessary thus becoming too large for the parts. In the third case the physician had inserted a large glass decanter-stopper into the vagina for the relief of prolapse, and the woman had worn it for fifteen years. There was a recto-vaginal fistula which ran upward two inches, beginning just above the posterior fourchette.

Dittel⁵⁷_{May 14} refers to the fact that many experienced operators are not able to close all vesico-vaginal fistulæ through the vagina. He recommends the abdominal method of dealing with these cases. After elevating the pelvis, an incision is made in the linea alba from the symphysis upward only so far that the uterus may be seized and drawn forward. The bladder is then drawn against the symphysis. The utero-vesical excavation is incised in the position in which the peritoneum is reflected upon the uterus. The fistulous opening in the bladder is closed, allowing the defect in the vagina to be filled by granulation.

Lagarde¹¹²_{Sept.} reports the case of a girl of 17 years, who had given birth to four children and twice aborted. She had a utero-vaginal fistula, which was operated upon by Simon's method. A small vesico-cervico-vaginal fistula remained, and was operated

upon at a second sitting. She was troubled subsequently with enuresis, which was cured by the Thure-Brandt method of massage in twelve *séances*.

PERINEUM.

Lacerations.—The causes and mechanism of lacerations of the perineum have been studied by Ouimet, of Montreal.¹²² He believes, as a rule, that lacerations of the perineum should be sutured primarily. Letcher, of Kentucky,⁷⁷¹ makes a strong plea for the careful examination of the perineum after labor. With the woman lying upon her side, the upper buttock should be raised, when any ordinary external laceration will be revealed; a still more accurate inspection should be made, however, with the vaginal walls held apart with retractors. He urges the immediate suture of lacerations. Should the patient's condition be grave from a prolonged or difficult labor, and the rent extend far up in the vagina, or should there be serious disease of ovaries or tubes and possible danger of peritonitis, he believes that it may be wiser to perform a secondary operation. He cautions against closing external tears and leaving more important vaginal rents untouched.

Becker⁶⁷³ expresses his opinion that, although every perineal rupture following parturition should at once be repaired, there are circumstances under which the measure may be contra-indicated. He embodies his views in the following conclusions: Immediate operation should not be resorted to when the perineum is œdematous; when, during parturition, the amniotic liquor exhales a fetid odor; when the parturient is feverish; when the edges of the wound are severely lacerated, a condition favoring gangrene; when, subsequently to the labor, it becomes necessary to tampon the uterus with iodoform gauze; when the illumination is faulty. For such cases only is secondary suture advisable,—*i.e.*, on the ninth to twelfth day, when the edges of the wound are undergoing healthy granulation. What the author calls tertiary perineorrhaphy, a much more serious and dangerous operation, can thus be avoided. The edges of the wound should be carefully freshened by paring before approximation, or scraped with a sharp curette. Carbolized silk is advocated as the best material for stitching. After one or two days castor-oil or fluid extract of cascara sagrada may be administered.

Incomplete Rupture.—Tuttle, of New York,⁴⁰ calls attention

to the fact that concealed tears are the most important surgical ones, and give rise to the most severe symptoms. Baird reported a case of incomplete tear of the perineum allowed to heal by nature, which united, a fistula forming. The patient had suffered from epileptic fits since her labor, these being completely relieved by the restoration of the perineum.

Tait's operation has received considerable comment. Feis, assistant in the Frauenklinik, Göttingen,¹¹⁶ reports forty-three cases operated upon by this method in the last two years, with satisfactory results. This series comprised both incomplete and complete tears. The patients were prepared by purgation on the day before the operation, and the bowels quieted by tincture of opium administered a few hours before. The pubic hair was shaved and the vagina washed with 1½-per-cent. carbolic-acid solution and cotton tampons previously sterilized in 5-per-cent. carbolic solution. The field of operation was then washed with soap and water, ether, and carbolic solution. A sponge provided with a silver wire was passed into the rectum. The field of operation was then made tense by the two assistants pressing the vulva strongly in the direction of the tuber ischii. A transverse incision was made between the posterior commissure and the margin of the anus, and the recto-vaginal septum thus divided. The perineal raphé was also transversely divided. At either end of this incision an incision was made at right angles so as to pass upward to a point a little to the outside of the union of the nymphæ with the labia majora. This incision was deepened into the recto-vaginal septum, care being taken not to wound either rectum or vagina with the point of the knife. The incision should be deeper according to the degree to which the perineum was relaxed. Usually, a depth of one and one-half to two centimetres is sufficient. The upper flap grows smaller after separation, from the elasticity of the tissues. It should be caught at its margin by three Koeberlé forceps and drawn up, forming a quadrangular wound. The patient is then ready for the reception of the stitches. A medium-sized, slightly-curved needle is used for this purpose. The needle, armed with silver wire, is entered in the skin at one side of the margin of the wound, and carried pretty deeply buried under the entire denuded area, so as to emerge in the skin at the opposite margin. Five or six such sutures are applied. Two sutures are then introduced, that they may be fastened on the

vaginal surface. The sutures are then twisted. Superficial sutures are applied between the deep ones, if necessary. The wound should be dressed with iodoform. For the first few days the patients lie with the legs bound together. Twice daily the wound should be powdered with iodoform. The bowels should be bound up till the fourth day, after which they may be daily moved. On the eleventh day the sutures are removed. On the sixteenth day the patients sit up, and on the twentieth they are discharged.

In complete perineal rupture the operation is modified. The three incisions in the \sqcap -form are made as just described. The vertical lateral incisions are continued backward to the end of the torn sphincter ani, forming a vaginal and a rectal flap. The posterior incisions must be shorter than those anterior to the transverse one. The recto-vaginal septum is now separated deeper than in the former case, the vaginal flap separated and elevated, and the rectal flap depressed in the same manner. The denuded surface is then closed with sutures as in the above case. Hawkins-Ambler¹⁸⁷ favors the Tait operation, and considers the use of silk-worm-gut sutures within the skin-margins to be valuable in securing the approximation of the flat surfaces, lessening the pain afterward, leaving a perfectly linear cicatrix, and raising the apex of the wound, preventing pursing of the parts included. He uses dry boracic acid for a dressing.

Cerné, of Rouen,²⁶_{Oct. 1, '72} considers that the Tait operation is in advance of other methods for the restoration of the perineum in that no tissue is sacrificed. He adopts Tait's method of suturing so as not to include the skin. Sykes²³⁹_{May 16} reports a case of complete perineal tear with incontinence of fæces for five years, operated upon by Tait's method, using silver-wire sutures, with good result. Another case is reported by Allingham.²²_{Apr. 19} Montgomery¹⁴⁴_{Jan.} exhibited to his class a patient operated upon by Tait's method for the restoration of the peritoneum with a resulting skin perineum, with no relief of the symptoms from which she suffered. Winslow⁵⁴⁷_{Feb.} reports a case of complete laceration of the perineum and incontinence of fæces. He repaired the injury by paring the edges of the laceration and suturing with silver wire. The result was a good one.

Cheesman⁵⁹_{July 22} refers to Martin's operation upon the perineum, which he thinks enjoys a greater popularity in America. The

operation consists in grasping in bullet forceps the four corners of a quadrilateral, formed by the middle of the rectocele, the points on either side whose coalescence is to form the posterior vulvar commissure, and the lower angle of the laceration. These are stretched widely apart and denuded. The catgut suture follows, at least four layers of buried running sutures being required to close the wound.

Spasm.—Frost⁵⁹_{Apr. 3} describes a condition of perineal spasm, attended with severe lancinating pain in the pelvic region, referred to the uterus. The patient is often hysterical, and there is a contraction of the perineum upon attempting examination. The seat and extent of the spasm differentiates it from vaginismus; in the latter condition the spasm is noticed in the parts surrounding the introitus vaginæ, while in the former the contraction involves the whole pelvic floor.

The treatment, evidently, is to relax at once the perineal spasm. To do this effectually, do not await the slow action of drugs, but at once, carefully avoiding the anterior vaginal wall and cervix uteri, introduce two or more fingers into the vagina, and press back the perineum. Then, with the thumb externally pressing against the lower segment of the sacrum as a fulcrum, stretch to its utmost the vaginal canal, even to the extent of giving some pain from the stretching, even bending back the coccyx. This is to be held stretched for ten to twenty minutes, or until the perineal muscles are sufficiently tired out to prevent their contracting again. It is most tiresome for the physician, but will well repay him. The relief to the patient is instantaneous. Other periodic attacks are quite certain to follow, after an interval of from a few hours to a few days, when the same procedure is to be again employed. Such treatment causes, after but a few applications, an entire cessation of the recurrences of the spasm. The fingers are to be preferred to any speculum or dilator, as they are not so harsh to the parts stretched, and there is no danger of pressure against the anterior vaginal wall or cervix uteri.

DISEASES OF PREGNANCY.

By A. LUTAUD, M.D.,

PARIS.

STERILITY—FECUNDATION.

W. P. Manton, of Detroit, ²⁷_{Nov. 92} is of the opinion that sterility in woman is most frequently due to catarrhal endometritis, resulting from a previous miscarriage. According to him, the principal causes are the following: 1. The absence of a suitable habitat for the ovum in the uterine cavity. 2. The obstruction of the cervical canal by mucus. 3. Increased alkalinity of the cervical secretions, corresponding to an exaggerated alkaline condition of the vaginal mucus. Manton believes that treatment in these cases is easy, and reports several cures. Attention is called ¹²⁹_{Sept. 92} to the influence of obesity in the production of sterility, particularly in man. When the sterility has been traced to the male, in six cases out of every eight, his impotence is due to this cause. In a clinical lecture, Champneys, of London, ¹⁰⁷⁷_{Feb. 92} stated the causes of sterility ascribable to the male to be of two kinds: (1) those due to a defective quality of the spermatic cell,—*failure of production*; (2) those due to a defective function of the spermatic cell and the germinative cell,—*failure of exchange*. Champneys attaches great importance to the first class of causes, and thinks that gonorrhœa plays an important rôle in the etiology of sterility, in man as well as in woman.

Edward Brady, of Dublin, ²²_{Oct. 92} considers retroversion as a very important cause of sterility. He quotes the case of a patient, aged 25, who had already had one child, but who was unable to conceive a second time. Upon examination, the uterus was found to be in a state of complete retroversion. Several attempts were made to place the organ in the correct position, followed by the use of Smith's pessary. No satisfactory results were obtained. After repeated attempts Brady succeeded in maintaining the uterus

in position by means of a Hodge pessary. Conception here took place very quickly, and the patient was confined at term.

Superfoetation.—Rubush, of London, Ind., ⁵⁶_{Oct., '92} has reported an interesting and rare example of superfoetation. Called to attend a woman in labor, he delivered her of a seven months' male child, healthy and vigorous. A few minutes later, the patient again having pains, he made an examination, and found the foot of another child presenting. He then delivered her of female twins of about four months. The labor was tedious. The placenta of the first child was first expelled, and, two hours later, those of the twins. The author believes that it was not an ordinary triple pregnancy, but a case of superfoetation; the conception of the twins having taken place about three months after the conception of the first child born at seven months.

Maskelyne Casham, of Edinburgh, ⁶_{Jan.} reports the case of a multipara, aged 28, who was delivered of a well-developed child at full term; immediately afterward she was again delivered of a dead foetus of about 5 months. Each child had its distinct placenta and membranes. The patient had menstruated during the first five months of pregnancy. The uterus appeared normal, and did not present the least sign of a division.

Pregnancy in Uterus Bicornis.—Scheppers ⁶⁹_{No. 20, '93} relates a case of uterus bicornis unicollis where the foetus developed in the right horn. Abortion occurred at the sixth month. Before the expulsion of the ovum, a decidua was discharged entire from the left horn. The parts were examined during labor; the pregnant cornu felt unusually long and slender, running obliquely from below upward and to the right. On the left side of the abdomen, immediately above the symphysis, a hard body about the size of a fist was detected. It was connected with the uterus. After delivery the cornua were readily detected. They united at an obtuse angle in the middle line.

The Lower Uterine Segment in Pregnancy.—De Seigneux, of Berlin, ⁸⁵_{B. 12, H. 1} believes that he is able to distinguish a demarkation between the cervix and the lower uterine segment. In the lower uterine segment the muscular tissue is arranged in well-marked lamellæ; in the cervix it is only laminated toward the periphery. Thus the level of the internal os can be distinguished in the puerperal uterus and in other conditions where the characteristic epi-

thelium has been destroyed or torn off. De Seigneux selected three specimens for his researches: (1) a uterus from a woman who died of hyperemesis gravidarum at the fifth month; (2) a parturient uterus from a patient who died of diphtheria and erysipelas during the dilatation period; and (3) a uterus from a patient who died, eighteen hours after delivery, from eclampsia. In the first the lower uterine segment was undeveloped posteriorly, and showed little signs of the hypertrophy of pregnancy in front; the persistence of the cervical canal during pregnancy was distinct. In the second and third no demarkation between the body of the uterus and the lower segment existed, but the segment gradually became thinner toward the cervix. No special "ring" could be found in either case. In all three the distinction between the cervix and the lower uterine segment was clear, and the segment was evidently a part of the uterus.

VOMITING OF PREGNANCY.

James Oliver, of London, ²_{Vol. 16} describes a case of vomiting which led to a fatal result. The patient was 29 years old, and was admitted into the Soho Square Hospital in the third month of pregnancy. She was extremely thin and had not been able to retain any nourishment, liquid or solid, for six weeks previously. The abdominal region was so painful that palpation was impossible. In spite of the greatest care, the woman died from syncope. At the autopsy a foetus of about four months was found in the uterus, but no lesion to explain the death, which was attributed to inanition. Another case with fatal result is recorded by Patru, of Geneva. ¹⁸⁷_{Ann.} The patient, aged 20 years, was brought to the maternity, September 5, 1891, for incoercible vomiting. She had been treated soon after the beginning of pregnancy, but, every remedy having been tried in vain, the physician decided to induce abortion, in view of the serious condition of the patient. Irrigations of the cervix, dilatation with tampons, and all other means of bringing on labor were unsuccessful. The poverty and dirt in which the patient lived rendered intervention difficult. After fifteen days of fruitless efforts, she was brought into hospital. She was then in agony, her emaciation and weakness being extreme. Her eyes were dull and projecting, the skin pigmented and dry; the pulse could not be counted; the eyelids scarcely closed on

touching the eyeball; there was agitation and delirium, hypothermia, furrowed tongue, and fuliginous teeth. The uterus was about the size of a three-month pregnancy, and the cervix was dilated as far as the internal os. There was no discharge, and no pains occurred. Under the influence of hypodermatic injections of tincture of musk, ether, and caffeine, and of injections of black coffee, the young woman appeared to rouse from her stupor for a moment, but the pulse became more and more feeble, and death followed nine hours after her entrance into hospital, and before any obstetrical interference could be attempted.

Moughet, of Sens,¹⁰_{Dec. 20, '72} presented to the Paris Academy of Medicine the report of a case of incoercible vomiting in a woman in her eighth pregnancy, the vomiting appearing in the first month. All remedies were useless, and, the woman becoming absolutely cachectic, abortion was decided upon; but in view of the extreme weakness of the patient, and in order to gain time and prevent serious hæmorrhage, uterine curettage was decided upon. The cervix being sufficiently dilated by a laminaria tent left in place for twenty-four hours, the membranes were ruptured by means of a uterine sound, and, the amniotic fluid having escaped, the uterus was emptied with the aid of a soft curette, the mucous membrane being removed with the ovum. The uterus was then irrigated and swabbed out with a cotton tampon soaked in camphorated naphthol, iodoform gauze being placed in the vagina. During the operation, which was done under chloroform, there was a slight flow of blood and several attacks of syncope. It was only after several injections of ether and caffeine that the state of the patient ceased to inspire immediate anxiety. On the following day the vomiting persisted, but the general condition slowly improved for seven days; the intervals between the attacks of vomiting grew longer, the patient could take a little food, and seemed on the way to recovery, when, the seventh day after the operation, a severe chill occurred, with elevation of temperature and return of the vomiting in all its previous intensity. There was an abundant flow from the uterus of a sero-purulent, odorous fluid. An injection of microcidin brought away some *débris* of the placenta, and by evening the fever disappeared. The extreme weakness of the patient, however, prevented her taking any nourishment; there was somnolence and delirium. The end seemed near, when

improvement again occurred, and the patient seemed on the road to recovery. Two days later, however, there was a relapse, with fever, several slight chills, and attacks of vomiting. These symptoms were soon explained by the appearance of an erysipelatous area on the left side of the head, around a small pustule of ecthyma, which had been irritated by the patient. In a few days the erysipelas extended from the ear to the right frontal region, where it was complicated by suppuration. Multiple incisions and antiseptic dressing, with drainage, soon brought this complication to an end, and in several days the patient was out of danger.

Blanc, of St. Etienne, ²²⁸_{Mar. 16} publishes a case in which induced abortion was necessary. The patient was in the third month of pregnancy, which until then had been normal. The vomiting had at first been simple, occurring at long intervals; suddenly it assumed the incoercible form, with continuous fever; hot, dry skin; dry tongue, and fetid breath. Emaciation was marked, the patient stating that she had lost half her weight. She was so weak that the slightest movement caused her to faint. A laminaria tent was introduced into the uterus with due antiseptic precautions. Toward the middle of the day there were some pains, and two similar applications were without result. It was then decided to curette the uterus, though the conditions were deplorable, the patient being a mere skeleton, without even strength to vomit, the pulse small and filiform; delirium was also present.

A light anæsthesia was effected by ether, and the uterus completely curetted, embryo, placenta, and decidua being removed. Sublimate irrigation and uterine tampons of iodoform gauze were employed, and the patient revived by subcutaneous injections of ether and caffeine. Recovery was rapid. The author believes that provoked abortion by the curette should be the rule in cases of incoercible vomiting.

Van Meter, of San Francisco, ⁹⁴⁸_{Jan.} contributes an interesting paper upon the etiology and treatment of vomiting in pregnancy. He attributes the condition to the simple cessation of menstruation, which, for some reason, always causes nausea and vomiting in cases in which pregnancy has not occurred. The vomiting manifests itself immediately after the time for menstruation, in the first months of pregnancy, increasing in severity for two or three months, and improving only when the foetus is sufficiently devel-

oped to draw from the maternal circulation an amount of blood corresponding to that represented by the monthly loss. This theory, however, is not sufficiently established to replace more rational ones previously advanced, based upon the change in the size of the uterus and the nervous symptoms of pregnancy.

Giles, of London,²_{July 22} has observed three hundred cases at the General Lying-in Hospital, and arrives at the following conclusions: 1. About one-third of the cases had no vomiting during the first three months of pregnancy. No diagnostic importance can, therefore, be attached to it in first part of gestation. 2. In cases in which vomiting occurred it was present in the first months in 70 per cent.; it appeared in the three last months in 10 per cent. The maximum was observed in the second month. 3. The vomiting was most frequent in patients between 20 and 25 years of age. 4. It was present in 90 per cent. of the primiparæ. 5. There was less vomiting in the third pregnancy than in any of the others. 6. When vomiting occurred in the first three months, it increased with the weight of the placenta and child; but its influence was felt on the nutrition of the mother and not on that of the child. 7. Patients who suffered from dysmenorrhœa before pregnancy were less affected with vomiting than those in whom menstruation had been easy.

Giles does not consider vomiting in pregnancy as a physiological phenomenon; but, from its analogy with eclampsia, he regards it as a manifestation of nervous instability, dependent upon an increase in the irritability of the nerves during pregnancy and upon local irritation.

Gustave Lang, of Paris,²³⁶_{Aug.} reports a case of incoercible vomiting in the fourth month of pregnancy, followed by death after spontaneous expulsion of the fœtus, and calls attention to the gravity of the affection, stating that Guéniot recorded 72 cures and 46 deaths in 118 cases; Pinard, 120 cures and 80 deaths in 200 cases. In Lang's case the prognosis was rendered the more dubious by the fact that the patient had arrived at the third period of incoercible vomiting, when there was practically nothing to be done; the poor condition of the patient and her surroundings, even before her pregnancy, and her scrofulo-tuberculous antecedents were all against her.

Leclerc, of Rouillac (Charente),¹⁰⁰_{May} claims to have obtained

good results in the treatment of vomiting in pregnancy by simple cauterization of the cervix, and recommends this measure as far superior to artificial abortion. He reports the case of a woman, aged 29 years, in whose first pregnancy the forceps had been necessary, as it had also been in the labors of her mother and two sisters. She was then delivered of a daughter, November 4, 1885. The second pregnancy began toward the end of August, 1888, and on September 10th she was attacked by pleurisy, which yielded to diuretics and blisters. During convalescence obstinate vomiting set in, which could be arrested neither by Rivière's effervescing mixture, ice, chloral, chloroform, bromide, opium, morphine, nor codeine. On the 20th of October, the real cause of the vomiting being suspected, and the patient being very thin and weak, artificial abortion was thought of; but remembering the case reported by Mauny, and with the advice of Porchère, of Neuvicq, three applications of the thermocautery were made to the vaginal portion of the uterus. The following day the vomiting had disappeared and the pregnancy pursued a normal course. Some pains occurred from the 13th to the 18th of May, but labor did not begin until the 27th, at 1 A.M. It terminated ten hours later, a daughter being born, which the mother nursed without any bad effects either for herself or the child. January 15, 1893, both were quite well.

Bérillon, of Paris, ²³⁶_{M.} obtained a cure by suggestion in a grave case, that of a woman who had already had ten pregnancies, four ending in miscarriage and six in the birth of living children at term. In the previous pregnancy vomiting had occurred, ceasing only with delivery. A great many remedies had been tried without success, and, as a consequence, in the present pregnancy she would consent to take none. On her first visit to him, Bérillon invited her to submit to the employment of suggestion. She presented a certain resistance, and he succeeded in producing but a light sleep. However, an energetic suggestion induced her to eat solid food, bread, meat, vegetables, and preserved fruits; she was assured that she would vomit no more, and that she would digest her food perfectly. The patient returned on November 1st, declaring that she had not vomited once, and her appearance confirmed the statement. Another attempt was made to hypnotize her, and this time she fell into a profound sleep. In a month the

vomiting had completely ceased, the patient obeying strictly the injunction to resist strongly any inclination to vomit. It was also suggested that she abstain from the use of pure wine and alcoholic drinks, which she had regarded as beneficial and for which she had a certain *penchant*.

Decès, of Reims, ⁵⁷⁷_{July} reports an interesting case in a woman of 44 years, a multipara, who firmly believed herself to have arrived at the menopause, an opinion shared by her husband. For three months she had suffered from incoercible vomiting, which had not occurred in previous pregnancies. She was admitted into the service of Moret, where no lesion could be found to account for the vomiting, and no remedy to arrest it. The uterus was found to be somewhat large on palpation, and, in spite of the assertions to the contrary, Decès strongly suspected pregnancy. The patient having reached a degree of extreme inanition, the cervix was dilated by means of a compressed sponge, and a foetus of three and a half months, with the placenta, extracted with forceps. The vomiting at once ceased and returned no more.

La Torre, of Rome, ¹⁴_{July 12} believes that the vomiting is due to reflexes from the cervix, which, being abnormally congested, irritates the nerve-filaments. In this belief he applies to the cervix tampons soaked in glycerin and 20 per cent. of ichthyol. Any other measure of the same nature would, in his opinion, give similar results.

Muret, of Strasbourg, ⁶⁹_{Feb.}, publishes a series of important cases tending to show that the incoercible vomiting of pregnancy invariably depends on hysterical phenomena, the patients being always hysterical. G. Solowjero, of Russia, ¹³_{Jan. 18} attributes the condition to a multiple neurosis of uterine origin. Frommel ³¹⁷_{Nov. 16} attributes it to a neurosis of hysterical origin. He used orexin in two grave cases in which no food could be retained.

UTERINE AND OVARIAN COMPLICATIONS.

Tumors.—Hogan, of Union Springs, Ala., ¹_{Dec. 17} reports the case of a colored woman, 28 years of age, with fibroid tumor of the uterus, in whom rupture of the uterus took place in the fourth month of pregnancy. He was confident that if operation had been done at once the life of the patient could have been saved. He advises that Porro's operation be done immediately in cases of

rupture, and in all cases where the tumor was large and multiple, intra-mural or subperitoneal, with a sacciform dilatation of the posterior segment of the uterus, the os being above the pubic bone or inaccessible.

Halliday Croom, of Edinburgh, ⁸⁶_{Oct., 72} gives a record of a number of cases of operative interference with fibroid tumors during pregnancy, labor, and the puerperal state. It is but seldom, notwithstanding their great frequency among child-bearing women, that fibroid tumors give rise to any inconvenience during pregnancy, and very rarely do they require surgical interference.

Displacements.—Cullingworth, of London, ¹⁰⁷⁷_{Dec. 7, 72} writes on retroversion of the gravid uterus, and quotes several cases in which this caused miscarriage at about the second month. He is of the opinion that reduction of the retroverted pregnant uterus may occur spontaneously, but considers it preferable to replace the organ by surgical manipulation in order to prevent abortions, so frequent in women with retroversion.

Otto Engstrom ⁴⁹⁸_{Jan.} reports a case of partial retroflexion of the uterus during pregnancy. The patient, aged 21 years, had previously borne a living child at term. Perioöphoritis followed, on the right side, the uterus remaining retroflexed. Another pregnancy occurred, and the ovum developed in a convexity of the uterine wall, facing the pelvic entrance, while the fundus remained below the promontory and the vaginal portion was pressed against the posterior portion of the symphysic pubic. Efforts were made to replace the uterus with both hands, but without success. As there was no necessity for radical measures, it was resolved to wait; and in the fourth month spontaneous reposition occurred, the uterus resuming its normal form and place. Pregnancy went on to term without any disturbance.

Wounds.—Kehr ³³⁶_{Nov. 9} reports a case showing that the uterus may be the seat of considerable traumatism without serious symptoms supervening. The patient, in the fifth month of pregnancy, shot herself in the abdomen, the exterior wound being to the right of and a little above the umbilicus. Although there were no immediate symptoms of a serious nature, Kehr performed laparotomy six hours after the attempt at suicide, and found a wound in the anterior wall of the uterus. As there was none in the posterior portion, and as the bladder and other organs were intact,

the uterine wound was sutured, and the abdominal cavity closed in the ordinary manner. It is natural to suppose that a certain quantity of the amniotic fluid entered the peritoneum. The patient recovered perfectly and left her bed on the twelfth day. Two days later, however, she was delivered of a five months' foetus, which had not been injured by the ball. The latter could not be found. It was somewhat difficult to extract the placenta, which seemed to adhere considerably at the point where the ball had entered. The patient recovered rapidly, and was perfectly well fourteen days after abortion.

A somewhat similar case is reported by Applewhite and Pernot,¹⁸⁶_{Oct., '92} the patient attempting suicide in the ninth month of pregnancy. A mixture of serum and blood flowed from the abdominal wound. Vaginal examination showed that the ball had penetrated the uterus and that labor was imminent. Twelve hours later a living child was born. The ball had perforated the uterus, passing through the arm and chin of the child, which died in eight hours, probably from the traumatism. The mother recovered, though there was some slight symptoms of peritonitis.

Pyosalpinx.—Hirst, of Philadelphia,²³_{Nov., '92} records a case of pyosalpinx complicating pregnancy. The patient was brought to hospital in the fifth month, with a voluminous tumor near the uterus. Laparotomy was performed and a large cyst containing about two litres (quarts) of pus found in the right ligament. The sac was sutured to the abdominal walls, emptied, washed, and drained. The patient recovered without accident.

Osteomalacia.—Rasch⁵⁹⁵_{Jan., '93} practiced oöphorectomy in a case of grave osteomalacia. The patient was a multipara, 41 years old, who complained of acute pain dating from the beginning of pregnancy and was unable to stand or walk. She was admitted to the hospital, where she was found to be suffering from extreme sensitiveness of the osseous system and intense fever (40° C.—104° F.). Premature labor was induced and the patient delivered of twins. There was no diminution of the pains, and oöphorectomy was performed, leading to almost immediate relief and recovery. Deformity remained, but the woman was able to walk and attend to her usual duties.

Diphtheria.—An interesting case was presented by Lomer, of Hamburg,⁸¹⁷_{Nov., '16} to the Medical Society of that city. The patient, a

primipara of 32 years, had suffered from vaginismus since her marriage. Coitus being impossible, she submitted to incision and dilatation of the vagina. She became pregnant. Toward the eighth month (May, 1892), she had fever (40° C.— 104° F.), and albumen was found in the urine. Examination of the genital organs showed the presence of diphtheritic patches on the cervix. Appropriate treatment was instituted, and the pregnancy continued. One month later (June) labor declared itself, and after forty-eight hours of suffering chills occurred, and the temperature again rose to 40° C. (104° F.). Dystocia was due to the resistance of the cervix, which was rendered rigid by the cicatrices following diphtheria. It was incised and a living child was born, covered with large, desquamated spots. A rupture of the perineum was immediately sutured, but united only by second intention.

CARDIAC AFFECTIONS.

Leyden¹¹⁴_{Nov. 1, 2} publishes twenty cases of pregnancy complicated by cardiac disease, and reaches the following conclusions: Women with heart disease conceive as often and as easily as healthy women, but gestation is more apt to end in abortion. Pregnancy generally aggravates the cardiac trouble, either temporarily or permanently, and under certain circumstances is attended with great danger. The causes which may determine death are pulmonary œdema and syncope by arrest of the heart's action, sometimes immediately after labor and sometimes several weeks later. The physician should, therefore, oppose the marriage of women suffering from heart disease, and advise abstinence in those already married. When serious cardiac symptoms arise in the course of gestation, which cannot be controlled by ordinary measures, the pregnancy should be arrested by artificial means. This indication is especially urgent when there is dyspnœa, œdema, or weakness of the heart. The results of induced abortion in such cases are more satisfactory than formerly. Chloroform may be used if the degree of prostration is not too pronounced. Leyden states that these conclusions are also applicable to cases of pulmonary tuberculosis, which he is certain is always aggravated by pregnancy.

Merklen³¹⁹_{No. 18} has studied the same subject, and regards the gravest symptoms to be sanguinolent bronchorrhœa, hæmoptysis, and pulmonary œdema. He accepts Peter's theory, which ex-

plains these symptoms by blood-plethora in the later months of pregnancy, causing a decided overstrain of the heart. The ordinary treatment of cardiac affections—digitalis, milk diet, etc.—is without effect in pregnancy, the only rational method being provoked abortion, which is, however, only indicated in grave cases. The author has observed that spontaneous abortion often occurs in these cases, and that when the child is born at term it is frequently weak and non-viable. In some cases observed by Merklen, venesection was of value in relieving the patient, 300 grammes (9½ ounces) of blood being removed. In one case the child died in the uterus and the mother experienced marked relief. Zerasusk, of Warsaw,⁹ observed two cases in which pregnancy was seriously complicated by mitral stenosis. He believes that it is the duty of the physician to examine the heart of his pregnant patients, and that the only efficacious treatment of such complication is the induction of labor before the fifth month.

J. C. Mulhall, of St. Louis,³⁶⁴ calls attention to a phenomenon observed by him in the last months of pregnancy, viz., the disappearance of the murmur in cardiac stenosis. He is unable to offer a plausible explanation of this fact.

SYPHILIS AND CUTANEOUS AFFECTIONS.

A. Fournier regards frequent abortion and great infant mortality in families as important signs of hereditary syphilis. Abortion is less frequent when the father only is syphilitic, and more frequent when the mother only is affected; it occurs almost constantly when both parents suffer from the disease. Fournier had under his care a family the father of which was very robust and the first three children healthy. The man then contracted syphilis and contaminated his wife, who aborted three times in succession. At the Lourcine Hospital, of 167 children of syphilitic women, 145 died.

Eugene Davis, of Indianapolis,⁵⁶ has published a very complete memoir on the influence of syphilis on gestation and the conditions under which the morbid germ is transmitted from mother to child and from child to nurse. * P. Puech, of Montpellier,²³⁶ publishes a case tending to show that rigidity of the cervix should be considered as a symptom of syphilis in a large number of cases. In the instance reported labor was only terminated

after thirty-eight hours, and the foetal head, in passing the cervix, caused a large transverse laceration.

Fournier²¹²_{Oct. 10, '72} describes herpetiform dermatitis in pregnancy as a rare disease, little known even to obstetricians. It is distinguished by five principal characteristics: 1. A polymorphous eruption, with a predominance of bullous vesicles; simple vesicles, bullæ, pustules, erosions, crusts, and spots were met with at the same time. 2. An accompanying pruriginous disease, really painful. 3. Good general health. 4. Successive attacks of the disease. 5. A chronic character, aggravated by each attack of the disease, which may last for some years. Herpes gestationis, which belongs to this morbid group, the herpetiform dermatitis of Duhring, presents most of these characteristics, but which co-exists with pregnancy or labor, may continue throughout the entire period of gestation and even through the puerperium, and may recur with each pregnancy. It generally appears in the fifth month, though in some cases it occurs during the first week, thus constituting an early sign of pregnancy. In certain cases it appears only immediately after delivery. In a general way, it seems to depend upon uterine disturbance and disappears with it. Some patients are affected in only one or two pregnancies out of five or six; others are always attacked, and Hardy has seen it present in ten consecutive pregnancies.

As regards symptomatology, the disease rarely occurs without prodromata, such as itching, a sensation of heat and burning in the parts to be affected, extending also to other regions. The eruption then appears principally on the superior members, and upon the abdomen. It then becomes generalized, though its areas of predilection are the limbs and the peri-umbilical region, but not the face. As to the eruption itself, it is, above all, polymorphous; the base is red, erythematous, with innumerable vesicles, followed by bullæ, at first transparent, then opaque. This is the usual type of the eruption, distributed in plaques over different parts of the body. There are, however, many varieties, among which may be noted four principal ones, the first characterized by the predominance of erythema in the form of plaques or sinuous chains; the second by the preponderance of vesicles, meriting particularly the name of herpetiform dermatitis; the third, bullous or pemphigous, the erythema being sometimes entirely

absent; and the fourth, a syphiloid type, sometimes assuming the form of circinate erythema, and sometimes a padulo-circinate form, exactly like that of certain syphilides.

The general symptoms are not very marked, fever disappearing after the first days, and the condition of the patient being good. Pruritus, however, is more or less intense, and when very violent may affect the health. The evolution of the disease is variable, as the elements of the eruption are continually undergoing a process of transformation. Sudden attacks are followed by complete calm, or the eruption extends progressively, affecting new areas. It ceases when the uterus has for some time been emptied of its contents; but generally it becomes more and more serious with each successive pregnancy. Its relation with gestation is, therefore, an established fact, and a most interesting one; but its etiology remains obscure; it is as likely to attack healthy women as others.

The general treatment consists, above all, in the use of arsenic and sulphate of quinine, which, although uncertain, have given some successes. Nothing will prevent recurrence. As topical treatment, fats, lard, and an oleocalcareous liniment give the best results; carbolic acid and menthol are also useful for the pruritus.

Frank Barendt, of London,¹⁸⁷ publishes a typical case of polymorphous dermatitis herpetiformis, and believes that herpes gestationis is the name most applicable to the affection. In his case it had occurred in five pregnancies, and the children, born at term, seemed to suffer from the morbid condition, some dying in early infancy and the others being extremely delicate.

Erysipelas.—Hunter Powell²²² reports an interesting case of erysipelas before delivery, giving rise to no symptoms of infection. The patient, a primipara of 19 years, had arrived at the eighth month. She was taken, several days before labor, with fever (104° F.—40° C.) and erysipelas of the face. Two days later, after a short and easy labor, an infant was born, apparently at term. At the moment of birth the temperature of the mother was still the same, and the erysipelas, still in process of evolution, extended over the face. The child had an erysipelatous eruption on the forehead, nose, and upper lip. The scalp was œdematous, and the appearance of the skin was markedly icteric. The erysipe-

las ran its course in both mother and child, both recovering. It remained limited to the head, and during the entire period of labor no symptoms appeared in the genital organs. Lactation was not interrupted; in fact, the disease manifested in the mother and the child seemed to have no influence upon the puerperium. The woman had contracted the erysipelas at a hospital, where it had appeared shortly before, together with other infectious diseases.

Erysipelas and Scarlatina.—Le Gendre, of Paris,¹⁰⁰_{Dec. 22, '92} has had under treatment a certain number of cases of scarlatina and erysipelas in pregnant women. According to his observations, it would appear that, in the majority of cases, these affections do not cause abortion. If confinement or miscarriage occur during their course, there is no genital infection, provided obstetrical antisepsis be rigorously practiced; moreover, the children at birth show no trace either of scarlatina or of erysipelas. The only patient lost by the author was attacked by malignant diphtheria, and gave birth, shortly before death, to a dead child. The foetus may have been killed by the diphtheritic poison, with which the mother was completely impregnated. Gogswell,⁶¹_{Dec. 24, '92} states that, although it is generally admitted that pregnant women are liable to scarlatina, the number of recorded cases is quite limited. Cazeaux has never observed a case, and Olshausen has collected only seven in his work. Gogswell has had one case, a woman of 26 years, in the sixth month of pregnancy. The disease was complicated with acute nephritis. The patient recovered and gave birth to a living child at eight and a half months, without other complications. Another case of scarlatina is published by Ballantyne and Milligan,⁸⁶_{July} occurring in a primipara of 21 years. She was attacked with scarlatina in the seventh month, having been exposed to infection, the disease causing the expulsion of a living child manifesting all the symptoms of scarlatina,—angina, fever, desquamation, etc.; more remarkable still, the child, as well as the mother, recovered. Foetal scarlatina has been but rarely observed.

PNEUMONIA.

Rendu,²¹²_{Sept. 16} devoted a clinical lecture to the study of the case of a woman who had died of pneumonia. She had been overworked, morally depressed, and a two-month pregnancy had terminated in abortion shortly before death. It is known, clinic-

ally as well as experimentally, that overwork predisposes to infectious diseases; and Roger and Charrin have shown by ingenious experiments that certain animals under normal conditions resist a given inoculation, but if previously overworked succumb very rapidly to it. But beyond this the case was interesting as bearing on the relation between pneumonia and pregnancy. In this, as in similar instances, abortion appeared to have aggravated the symptoms. Rendu has seen several patients suffering from pneumonia die within some hours after abortion. That the disease is aggravated by pregnancy is proven by statistics, which show a mortality of 8 to 9 per cent. The farther advanced the pregnancy, the graver the pneumonia, the cause of this being partly mechanical, from diminution of hæmotosis; but, in addition, the heart at this period is already fatigued, the kidneys, to a certain extent, altered by pregnancy, thus bringing about a serious pathological condition.

The frequency of abortion, which aggravates the situation, appears to be due to the fact that the foetus dies from infection, and the uterus hastens to relieve itself. The foetus being always dead, Cæsarian section is generally useless in such cases. The influence of abortion upon the principal disease has been much discussed, and some authors regard it as a source of improvement, while others look upon it as rendering the condition more dangerous. Rendu is of the latter opinion, although he admits that in certain acute cases due to the pneumococcus the patients may be relieved; in the infectious forms, however, the disease is nearly always aggravated, and dangerous symptoms come on so rapidly that the physician must be content to make antiseptic intra-uterine injections where there is retention of the placenta; recourse should be had to stimulants, as alcohol, quinine, and wet cloths, with injections of caffeine to strengthen the heart, which is always weak. Injections of sulphate of strychnine, 0.001 to 0.002 gramme ($\frac{1}{84}$ to $\frac{1}{32}$ grain), have sometimes given good results.

INFLUENZA.

Chambrelent, of Bordeaux, ¹⁸⁸_{June 18} reports a case in which the death of the foetus seemed to be due solely to influenza in the mother, of the gastro-intestinal form. The patient was attacked by fever, headache, and cough, and soon showed gastric and intestinal symptoms, complaining of violent colic, the bowels moving

a dozen times during the day. An obstetrical examination showed that the foetus presented by the vertex. Eight days later Chambrelent was again called in, and found the woman in labor. She stated that she had not felt the movements of the child since he had last seen her. Auscultation showed that the heart had ceased to beat. The foetus was born that night, and appeared to be of about the eighth month; it was macerated to a degree corresponding perfectly with the period from which the mother had ceased to feel its movements. Its death could be explained, therefore, by the disease from which the mother suffered at that time.

VARIOLA.

Variola being frequently observed in pregnant women, Richardièrre, of the Aubervilliers Hospital, ⁴³⁹_{June}, has formulated the following precautionary measures for use in his service: All pregnant women suffering from variola are given a sublimate bath lasting a quarter of an hour once every day, and twice a day if the eruption is very abundant. The external organs are kept constantly covered with a compress soaked in Van Swieten's fluid, and two vaginal injections of sublimate (1 to 10,000) are given daily. This treatment is continued without interruption or modification until abortion or labor occurs. Intra-uterine sublimate injections are made only when the temperature goes beyond the normal; in cases where intra-uterine treatment was necessary, the febrile and infectious symptoms were always arrested.

These measures were always found to be very satisfactory. In only one case did sublimate poisoning occur, manifesting itself by stomatitis. The sublimate was replaced by permanganate of potassium, and the untoward symptoms disappeared.

CHOLERA.

Klautsch, of Halle, ⁸⁴_{Nov. 29, '92}, observed ten cases of cholera in pregnant women at Hamburg. Of this number, one died before delivery, one after an incomplete miscarriage at about the seventh month, and three after premature confinement during the eighth month. Of the five women who survived the cholera, three left the hospital, the foetus being alive; one was delivered during the eighth month of a dead child, and another, also during the eighth month, of a living child. During the course of the disease the

mothers frequently felt the movements of the foetus, which ceased, however, when the toxic period was very severe. The cholera bacillus was not found in the blood of the dead foetus in any of these cases. Gaillard has studied the influence of cholera in pregnancy, and finds it especially disastrous to pregnant women, who are peculiarly subject to the disease. Of numerous cases collected by him, the mortality was 100 per cent. Treatment, which consisted of lactic acid, cocaine, laudanum, and intra-venous injections, gave negative results. The most important point to be noted in the researches of the author is that, while in most infectious diseases the foetus is expelled, in cholera it dies in the uterus or is retained.

PYELITIS.

Vinay, of Paris, ¹⁴_{June}, remarks that inflammation of the ureter and kidney during pregnancy has not hitherto occupied the attention of physicians and obstetricians, either because the complication is not frequent or because the symptoms are not sufficiently known. He publishes two cases,—the first in a primipara of 26 years, in the eighth month of pregnancy. Being exposed to cold, she afterward had violent chills, and the temperature went up to 40° C. (104° F.). Micturition was painful, and the urine, scanty and acid, contained pus in abundance. There was intense pain in the right flank, increased on pressure. Three days later she was delivered of a living child by forceps. Pain and fever persisted, but the patient finally recovered after a long convalescence. The second case, in a primipara of 22 years, presented exactly the same clinical features. The author dwells at length upon the habitual symptoms of pyelitis in pregnancy, which he attributes to infection from the bladder into the kidney and to the presence of the bacterium coli. Briefly, the affection is not very painful, and generally improves after confinement; in some cases, however, it may be serious enough to necessitate premature delivery. The ordinary treatment consists in absolute repose, milk diet, soft drinks, and alkaline waters.

HÆMATEMESIS.

Robert Koch ²¹_{No. 20} reports the case of a woman who suffered, in the third month of gestation, with profuse hæmatemesis, attributed to ulcer of the stomach. She became very anæmic, but was

delivered of a healthy child at term. The hæmorrhage did not recur after labor. A second case is described by the author, in which abundant hæmatemesis occurred, causing syncope and grave symptoms. She was delivered of a dead child in the seventh month, when the hæmorrhage disappeared and recovery ensued.

GOITRE.

Klopatofsky, of Bogota,⁴⁸⁹ observed the case of a woman, aged 33, suffering from goitre, in whom considerable increase of the tumor occurred in the seventh month of pregnancy, with threatening asphyxia. The symptoms were rapidly dispelled by the use of large doses of bromide of potassium. Delivery took place normally, and the tumor rapidly diminished in size. The author attributed the complication to the nervous state of the patient, who was hysterical and easily excited.

RHEUMATISM.

Von Noorden, of Berlin,⁵⁷ in the course of three years, has observed eleven cases of acute articular rheumatism in pregnancy, and has come to the conclusion that the gravid state renders the disease more serious and increases the difficulty of cure. In spite of the use of the remedies most lauded, the disease lasted for months, affecting one articulation after the other, but chiefly the larger joints, as the knees.

PREMATURE LABOR.

Delthil, of Paris,²⁴ considers that when craniotomy has been found necessary at a first labor, induction of premature labor should be proposed in subsequent pregnancies. He succeeded in two cases of premature labor at the seventh month. He did not employ the *couveuse*, which is costly and hard to manage in private practice; besides, it does not allow the feeding or cleansing of the child without exposing him to a low temperature. Ernest Hermann, of London,² thinks that the bag devised by Champetier de Ribes to induce abortion or premature labor is a great improvement on Barnes's bags. Its advantages are as follow: 1. With Barnes's bags successive sizes must be put in one after the other; the introduction of each necessitates a visit from the doctor and manipulations troublesome to him and disagreeable to the patient.

One operation only is required with Champetier de Ribes's bag ; when this is in its place, it dilates the cervix to the full extent without any need for further interference, and the doctor may leave the patient, trusting the nurse to send when pains become strong. 2. Barnes's bags are made of India rubber, which stretches when fluid is pumped in. Hence the operator has no clear indications when the bag is full ; and hence, also, if the cervix is rigid, the part in the cervix remains unexpanded, while the part above, and especially the part below, bulge out instead. Champetier de Ribes's bag is made of inelastic material ; when it is full, no more fluid can be pumped in, and it does not alter its shape. 3. Barnes's bags are put in with a rod or sound in a little pocket at the side of the bag. This little pocket is very apt to give way. Modifications have been made in the bags by others to remedy this imperfection, but no way is so satisfactory as the convenient forceps by which Champetier de Ribes's bag is put in. 4. It is not possible to obtain complete dilatation of the os with Barnes's bags. Champetier de Ribes's dilates it fully. 5. In the introduction of Barnes's bags the membranes are sometimes ruptured, and the presence of the bag in the lower segment of the uterus sometimes displaces the presenting head, changing a natural into a transverse presentation. With Barnes's bags these are serious drawbacks, for, if these accidents happen, there is much risk to the life of the child in turning and extraction.

RETENTION OF THE FŒTUS.

Blanc, of Lyons, ²⁴_{JAN. 18} describes two cases of retained fœtus. In the first the patient suffered from uterine hæmorrhages two or three months after cessation of the catamenia. The bleeding continued for two months. The uterus was large, cylindrical, and hard ; the cervix soft, the os patulous. Over five months later she was seized with violent pain and flooding. A firm, hard mass, of the size of a small fist, was found in the vagina. It was taken at first for a fibroid polypus. On examination, it was found to consist of a stratified fibrinous material, including a fœtus of about two months and a half, shriveled and perfectly dry. The second patient was 44 years old. She had borne one child twenty years previously. After its birth, till April, 1890, the catamenia were perfectly regular. Then they were suppressed, the breasts and

abdomen enlarged, and about September 15th quickening was observed, but foetal movements ceased a month later; the abdomen became smaller. Blanc examined her on February 16, 1891. Milk escaped from the nipples on pressure. The uterus extended two fingers' breadth above the umbilicus; it was resistant, firm, and non-fluctuating. A *souffle* was distinctly heard. The cervix lay very high up in the pelvis; it was soft and closed. On March 15th no *souffle* could be heard. In July, 1891, the patient was seized with labor-pains, and was delivered of a large foetus, followed by the placenta. Blanc notes that, unfortunately, the foetus was not preserved; so that he had to rely on the patient's account.

A partial retention of the foetus has been published by Loisel and Nolte, of Caen, France.¹⁶² The woman was a III-para, her previous labors resulting in spontaneous delivery. The doctor attempted turning, and, failing, amputated a leg. On the day following he cut off the other leg. Next day he decapitated and removed the trunk and arms. Antiseptic injections were prescribed, but, through ignorance of the patient, were not given. The woman resumed her work, but was annoyed by the lochia continuing longer than usual. The doctor found a vesico-uterine fistula and a solid body occupying the uterus. He extracted a piece of maxilla by the aid of forceps. The patient was then admitted to a hospital. The os was dilated and the foetal skull removed in pieces. There had been, up to this time, no signs of septicæmia.

Budin, of Paris,¹⁹⁴_{Oct., '92} has reported a case in which an ovum was retained eleven months in the womb. The foetus had been completely destroyed, and it was only by microscopical examination that amniotic and placental tissues were detected.

James Wallace²³⁹_{Feb. 15} publishes a very interesting case, in which the placenta and ovum protruded from the womb, and were mistaken for epithelioma. The foetus (five months) was removed with the finger after dilating the cervix. The patient recovered.

ABORTION.

Eckstein, of Berlin,⁸⁸_{No. 17 et seq., '92} has published the report of sixty-six cases of abortion. The rational treatment is the use of instruments, the tampon being only necessary in cases where the cervix is not expanded. When the pregnancy has attained the fifth month,

the case should be treated as a normal delivery. When there is fever and infection, the uterus should be emptied as soon as possible with the curette. Ergot should not be given until the womb has been relieved of its contents. Papers on the treatment of abortion have been published by G. Webb, of McKinney, Tex. ⁸⁵_{Jan.}; E. Davis, ⁸⁰_{Feb.} and Fenwick, of Ottawa. ²⁸²_{Dec., '92} Chas. H. Harris ⁷⁸⁶_{Oct.} states that, by means of curettes and snares adjusted *in utero*, cases of abortion may be relieved in a remarkably short time. When the cervix has been properly dilated, a snare with round wire and rubber hood is passed into the uterus, the loop enlarged, and the attachment of the placenta curetted off. The ovum is then extracted with the snare, or cut into fragments easy of extraction. A second snare is used, with flat watch-spring wire, to curette the uterus, care being taken that the os is not too narrow or rigid.

OBSTETRICS AND PUERPERAL DISEASES.

By P. BUDIN, M.D.,

AND

L. MERLE, M.D.,

PARIS.

PHYSIOLOGY.

Impregnation During the Puerperium.—Kronig³¹⁷_{No. 19} reports the case of a woman of 32 years, regular in menstruation, who became pregnant, and was normally delivered on July 4, 1892. On the 8th of July intercourse took place after an abstinence of three months. Menstruations did not return, and in November, 1892, active foetal movements were felt. On March 10, 1893, 243 days after connection, a child was born, apparently full-term, although labor took place twenty-seven days before time. From this case Kronig concludes (1) that spermatozoa may preserve their vitality in the lochia; (2) that the functions of the ovaries do not entirely cease during pregnancy; (3) that menstruation and ovulation may occur independently of each other; (4) that in healthy persons the endometrium may undergo regeneration soon enough after labor to permit of the ovum obtaining a nidus very early in the convalescence.

Condition of the Mucous Membrane in Closed and Malformed Genitalia.—Th. Landau and Rheinstein⁸¹⁷_{p. 4} state that in malformation of the genital organs the mucous membrane is everywhere normal; the retention of menstrual blood causes its disappearance by atrophy and compression. The mucous membrane of the tubes shows at first a great facility of resorption, but, becoming weakened, succumbs to compression. These conclusions are drawn from an examination of four cases in which operation had been performed.

The Seat of Menstruation.—The same authors⁸¹⁷_{p. 4} state that in three cases proof was present that the tube is, in reality, the seat

of menstruation, and does not contain blood coming from the uterus.

Menstruation and Childbirth in Hermaphrodism.—Messner,⁸¹⁷_{p.680} observed a new case of hermaphrodism. An individual, married as a man, had a feminine appearance, with masculine sexual organs. The right ovary could be felt beside the penis and testicle. The two glands were active, the semen being productive, and a child being born of the marriage. On the other hand, a spontaneous hæmorrhage occurred regularly every four weeks after the age of 21 years, lasting three or four days.

Repeated Labor.—Schuhl,¹⁸⁴_{May}, after studying one hundred and eighty-seven cases of repeated labor, reaches the following conclusions: 1. From the first to the sixth pregnancy the interval between two successive pregnancies is shorter in proportion to the number of pregnancies. 2. A similar presentation was observed in all the labors of one woman in 91.72 per cent. In these cases the frequency of vertex presentations was about 99.3 per cent.,—that is to say, greater than the ratio of vertex presentations generally. 3. A similar presentation and position of all the fœtuses of the same woman was observed in 51.59 per cent. 4. The left anterior occipito-iliac position was repeated in all the labors of one woman much more frequently than the right posterior occipito-iliac, the proportion being 5.07 per cent. for the former and 2.1 per cent. for the latter. 5. The duration of the period of dilatation and expulsion, calculated for the first three labors, diminishes as the number of pregnancies increases. 6. On an average, of three women having hæmorrhage during labor, one of them suffered from hæmorrhage in the previous labors. 7. In the same women the average weight of the first placenta was less than that of the second, in two cases being proportional to the weight of the fœtus. 8. The average length of the cord, based upon the first three pregnancies, increases with each gestation.

MULTIPLE PREGNANCY.

Superfecundation and Superfœtation.—J. M. Krimm, of Louisville, reports a case of twin pregnancy, in which the death of one fœtus occurred at four months, the other being born alive. The woman had twice before been pregnant, the second being a twin pregnancy. When almost at term she was delivered of a

child weighing $6\frac{1}{2}$ pounds (3.2 kilogrammes). Several days later severe pains came on, and Krimm extracted a four months' foetus, macerated and of fetid odor. Recovery followed appropriate treatment. A case of the same kind is reported, one foetus dying at four months, the other living. Labor occurred at intervals of several days.

Th. Waller ²_{Jan. 7} observed a case in which there was an interval of one week between the birth of the two children, the first foetus being followed by its placenta. A correct diagnosis had been made. Both were fine infants at full term. There was no lochial discharge during the interval, and the secretion of milk did not occur until after the birth of the second child.

J. L. Utter, of Detroit, gives the history of a primipara, 31 years old, who was delivered at the hospital of a boy weighing 5 pounds ($2\frac{1}{2}$ kilogrammes), with very thick black hair, the placenta following immediately. Twenty-four hours later a second child was delivered, a girl weighing 4 pounds (2 kilogrammes), with blonde hair. The author thought that there was a possibility of different parentage, and the woman, upon being questioned, admitted having had connection with two men within twenty-four hours, the one being very dark and the other very light. Maléas ⁸⁷_{Jan. 31} describes the case of a woman delivered at term of a healthy girl, together with the placenta. Two hours later symptoms of labor came on, and in four hours Maléas extracted a dead foetus of about five months, with its placenta partly decomposed. The author asks whether the two children originated in the same ovum or a different one, and whether the case was one of superfecundation or superfœtation. Abel ⁸¹⁷_{p. 149} asks the same question in reporting a case in which a papyraceous foetus was expelled at the same time as a living foetus. There had been but a single coitus. A. Martin ²_{June 24} was called to see an infant, 3 weeks old, on May 25th, and learned that the mother had aborted on the 1st of January preceding, and that the midwife had estimated the foetus to be of three or four months. From these dates the living child was evidently born four months and some days after the abortion. The mother had felt the movements of the child one month after miscarriage.

In a case seen by Maskeline Pasha, ²_{Jan. 7} a V-para, the birth of a well-developed child was followed by the expulsion of a foetus

of five or six months. The membranes and placenta were distinct. Menstruation had occurred until within five months of the labor, ovulation thus seeming to have been normal during the first months of pregnancy. The uterus was normal. This case seems to confirm the theory that impregnation of a second ovum is possible when the uterus already contains an ovum in a certain stage of development.

W. Stewart²_{Dec., '72} reports a case of superfœtation in a bifid uterus. The patient, a II-para, was delivered of an asphyxiated child weighing 10 pounds (5 kilogrammes) after a tedious labor. In extracting the placenta the physician felt a hard, resistant body in the right horn of the uterus, recognizing it as a second ovum. Rupture of the membranes was followed by the expulsion of a living fœtus in the sixth or seventh month, weighing about 2 pounds (1 kilogramme).

H. W. Tate⁷¹_{Aug.} reports a case of triplets in a woman who had already borne four children. Labor beginning, a first child was delivered, and then a second, both being vertex presentations. Palpation showed a third fœtus with shoulder presenting. There was hæmorrhage, but version was easily effected, and thus within one hour the patient was delivered of two boys and one girl. There were three placentæ and three distinct sacs, each with chorion and amnion. The placentæ of the boys were adherent, that of the girl isolated. The three children were healthy when born, but the girl died on the second day. D. MacDonald²_{Feb., '18} gives the history of a woman who gave birth to three girls, one of which weighed 8 pounds (4 kilogrammes) and the others 7½ pounds (3½ kilogrammes). The mother was herself one of triplets.

Lamparelli⁴⁶³_{No. 3} had a case of triple pregnancy in a VI-para at term. The first was spontaneously delivered with its placenta; the second and third presented transversely, necessitating version. All were living, two boys and one girl; both of the former, however, died in several days. Two of the placentæ were joined by a membrane, and there was anastomosis between the vessels of the cords.

Kambouroglou²³²_{May '21} also reports a case of triple pregnancy, two healthy boys and a girl. There were three distinct sacs and two placentæ joined together, the smaller having a cord, and the

larger, almost twice the size of the smaller, having two cords and two sacs.

Swan⁵⁴⁷_{Mar.} reports the case of a woman who gave birth to six children within seventeen months, in two triple pregnancies. The first terminated prematurely, two of the children dying at once, and the third in five weeks. The second pregnancy was uneventful, the three children living at the time of the report.

ASEPSIS AND ANTISEPSIS.

Mermann³¹⁷_{p.177} never makes use of the catheter, but obliges the patient to assume a kneeling position, or even to get up to urinate. He uses injections but rarely, simply washing the parts with boiling water and drying with sterilized cotton. If the temperature of the patient rises, the genital organs are explored. On an average three examinations are made during labor. Of two hundred cases, the author has had no deaths, and rise of temperature but fourteen times. Eberhart³¹⁷_{p.390} states that, although Mermann regards the possibility of infection by the vagina as very slight, it is not wise to draw conclusions from his statements. For his part, Eberhart believes disinfection of the vagina to be absolutely necessary, some of the liquid to remain within a territory so favorable to the development of bacteria. Instead of 1-to-3000 corrosive sublimate, he uses lysol, 1 to 100. Recourse should be had to this drug in gonorrhœa, abundant hæmorrhage, or ill-smelling secretions, when there is elevation of the temperature, or when an intra-uterine operation becomes necessary. Groth³⁷⁰_{v.4, No.1, '92} employs in his service a strong solution of lysol ($1\frac{1}{2}$ to 100) for washing the hands of the nurse, the pupils, and the genital organs of the patient, using a solution of 0.30 to 100 for vaginal injection. Since he has used this antiseptic (from September 1, 1891, to August 31, 1892) he has had excellent results, the mortality from puerperal fever being 0.21 per cent., while the preceding year it was 0.23 per cent.

H. Mays⁷⁷_{Aug.} does not make an antiseptic injection after delivery, but ordinarily, after the second day, on the appearance of the lochia, making two injections daily if necessary. A. Duke²⁸_{Nov.1, '92} insists upon the importance of examining the internal genital organs after labor, even in normal cases, so as to ascertain that there are no lesions. If a tear exist, it should at once be sutured

with catgut or cauterized, according to the case, and antiseptic injection practiced. Subsequent normal labors will thus be assured. An interesting review of the subject is published by W. P. Manton. ¹⁹⁶_{Oct., '92}

Ridgway Barker ⁷⁶⁴_{July '8} describes the advantages of antiseptic irrigation of the parturient canal before and after labor, without going as far as Laphorn Smith, of Montreal, who claims that the vaginæ of all women are infected because all their husbands have had gonorrhœa. The author uses sublimate, and regards the assertions of Garrigues, as to the bad effects of this drug, as being without proper foundation. Like all other medicaments, it is not dangerous if used judiciously.

Mercurial intoxication by intra-uterine injections formed the subject of a paper by Weiss. ²_{Dec., '92} The case was that of a woman presenting the symptoms of puerperal fever. In three hours 10 litres (quarts) of a solution of bichloride of mercury were injected into the uterus, with the result of producing marked symptoms of poisoning. Weiss advises against the use of the sublimate except in solutions as weak as 1 to 5000 or 6000. It should never be used in post-partum hæmorrhage. In a case seen by Jéhé, ¹¹⁴⁹ in which abortion occurred at the third month, three injections of a litre (quart) of 1 to 2000 were made by the vagina. Symptoms of poisoning appeared, accompanied by a scarlatiniform eruption. The cervix was open, and there was an old metritis with marked ectropion. Billon ²⁴_{June '25} observed two cases of poisoning, both in primiparæ. Two injections of Van Swieten's fluid, diluted one-half, were given. The symptoms disappeared when the injections were discontinued. These are the first cases he has seen in fifteen years.

ANÆSTHESIA.

J. B. Potter ¹⁰⁷⁷_{Feb. 15} makes a plea in favor of chloroform, regarding the objections urged against its use as not sustaining serious investigation. The mortality is very small; the labor is not retarded, the contractions being neither slackened nor diminished. Post-partum hæmorrhage cannot be imputed to its use. It has been regarded as contra-indicated in heart disease, but the author states that it is in just such cases that it is employed by the most competent obstetricians. It does not increase the number of stillbirths. It may be employed in the three stages of labor. M.

Dunagan¹⁴³_{Sept.} is also a partisan of chloroform, believing that it is not only without inconveniences, but that it is of the greatest assistance.

Poitou-Duplessis²³⁶_{July} studied the effects of chloroform in labor in an albuminuric patient. The urine contained 15 grains (1 gramme) of albumen per day. Twins were born, the head presenting in one, the buttocks in the other. Chloroform was administered during a period of three hours consecutively. After delivery the urine contained scarcely a trace of albumen, thus proving, in the opinion of the author, that the German theories as to the action of chloroform upon the kidneys are not exact. A. B. Cates¹⁰⁵_{June 15} advocates the use of chloroform, finding it especially useful in eclampsia. He considers it contra-indicated in diseases of the brain, heart, or lungs, as well as in anæmia following abundant hæmorrhage. In the discussion which followed his paper, his opinions were indorsed by Moore, Dunn, Staple, Spratt, and Freeman.

Doenoff²⁴_{Jan. 18} subjected eight parturients to more or less complete chloroform narcosis, and estimated the strength of the uterine contractions by means of the tocodynamometer of Schutz. He concludes that chloroform, even in small amount, has a paralyzing effect upon the contractions; and that under complete anæsthesia their intensity is diminished one-half, the diminution becoming more marked as the narcosis is continued. If the anæsthesia be incomplete, the pains are irregular in rhythm and force; if it be profound, the intervals are greater, the pains long and feeble. When the patient regains consciousness, it is two hours before the contractions regain their normal strength. G. E. Thompson⁹_{June 8} cites two cases in which inhalations of chloroform were without effect. In the first case there were hysterical convulsions during labor; in the second the pains were too intense.

Vallas²³⁶_{Sept.} has made an interesting study upon ether anæsthesia. He reviews the subject thoroughly, arriving at the following conclusions: 1. Ether is as efficacious and as certain in action as chloroform; if given in larger doses than the latter, it will produce an anæsthesia as complete and prolonged as may be desired; the method of administration is the simplest, its principal inconveniences being periods of excitements and vomiting, which may be lessened by mixing the ether with morphine and atropine.

2. Ether is less fatal than chloroform. Statistics from recent literature and an experience of half a century in the hospitals of Lyons confirm the author in his opinion. The causes of this relative safety are the less sudden and less irremediable character of the accidents produced by ether as compared with those caused by chloroform.

THERAPEUSIS.

Ergot.—W. C. Abbott ¹⁹⁹_{July} states that it is inexcusable to give large doses of ergot while the child is still within the uterus. Small doses are of value for inertia. Thomas More-Madden ²²_{Feb. 22} believes ergot to be indicated when the second stage is delayed by defective uterine action, the presentation being normal and no other obstacle being present; in cases of the same nature in which post-partum hæmorrhage is for any reason to be feared; in cases of hæmorrhage after delivery or due to insufficient uterine contraction. Sutherland ²⁰⁹⁹_{Apr. 1} reports a case of rupture of the uterus following the administration of ergot of rye before labor. The woman recovered. E. Hermann, ²_{Nov. 19, '92} advises the use of the drug if there is any cause to suspect imperfect involution. J. B. Lamarche, ¹²²_{Feb.} while admitting that ergot is a dangerous weapon not to be trifled with, asks why we should forbid its use entirely. It is of immense service in post-partum hæmorrhage, and, when judiciously employed, is of value under other circumstances.

Jefferson C. Crossland ²³³_{May} concludes that ergot is often employed to prevent imaginary dangers, but that in cases in which it appears to be most strongly indicated the best results are obtained without it. The evil which it does is often attributed to other causes. Once administered, it is a powerful agent against which we have no remedy; if the natural forces are insufficient, we are unable to control its action. When all other means have failed, the forceps should be the last resort for delivery in the natural way. Green ²²⁴_{July 29} also opposes the use of ergot, believing that it may be advantageously replaced by other measures. Jenkins ²²⁴_{July 29} does not use ergot either before or after labor. Swope ²²⁴_{July 29} believes it to be indicated in certain cases. J. F. Shelley ¹⁷⁶_{July} recommends the drug in puerperal septicæmia. Generally, in this disease, the uterus is soft and flabby, and absorption is therefore much more rapid. Ergot is indicated here on account of its

action upon the involuntary muscular fibres. The author reports one case.

Strychnia.—C. V. Hall prefers strychnia to ergot, on account of its being a definite alkaloid, which may be preserved for years without losing its strength. It does not cause nausea, is an ideal excito-motor, and has a triple action, re-inforcing and sustaining the action of the heart, the lungs, and the uterus. It may be relied upon to prevent or combat shock from hæmorrhage or other causes. Its action upon the contractions of the uterus is specific.

Ipecac.—J. Thomas ²_{Mar. 25} states that ipecac causes rapid dilatation of the uterine orifices and excites contraction, its action being certain in the majority of cases.

Venesection.—W. B. Dewees ⁵⁶⁸_{Apr.} believes that in certain plethoric conditions blood-letting is without danger, and is a simple, efficacious, and rapid method of diminishing suffering in labor when there is rigidity of the cervix, the perineum, and the adjacent soft parts. It facilitates delivery of the foetus and of the placenta, and prevents irregular and spasmodic contractions, rupture, tears of the cervix or perineum, protrusion of the cervix before the foetal head, inflammation and gangrene from too prolonged compression of the soft parts by the head, as well as uterine atony. H. Bryant ⁵⁶⁸_{Mar., Apr.} does not share the enthusiasm of Dewees, but believes that, while venesection may be indicated in eclampsia, it should not be employed until other measures have been tried.

Chlorate of Potassium.—This is extolled by Harkin ⁶⁷_{Dec. 20, '92} as a galactagogue. In a case of puerperal fever in which the milk had disappeared, the use of the drug not only caused the recovery of the patient, but also the return of the lacteal secretion.

Glycerin Enemata and Intra-uterine Injection.—According to Anacker, ⁶_{May 29} an enema of several grammes of pure glycerin at the moment of delivery will cause an increase in the force of the contractions and hasten the completion of labor. Pelzer ¹⁴⁸_{June 26} found that an injection of from 50 to 100 cubic centimetres ($1\frac{1}{2}$ to $3\frac{1}{4}$ fluidounces) of glycerin between the uterine walls and the membranes hastened labor. The patient must be placed in the genu-pectoral position.

Electricity.—Ogden C. Ludlow ⁵⁹_{Dec. 24, '92} speaks of the sedative and oxytocic properties of electricity and its effects in uterine

hæmorrhage. He gives ten cases of tedious labor, post-partum hæmorrhage, and hour-glass contraction, in which he obtained excellent results; however, he does not regard the remedy as always infallible.

NORMAL SEQUELÆ OF LABOR.

Afanasieff, ⁷²⁸_{Aug.} in a study of twenty-nine cases, found microbes present throughout the entire extent of the genital tract. The smallest number were in the uterus, the upper part of the vagina containing the largest number. Even after daily irrigations of the genital canal, the microbes found were capable of culture.

Desplats ²¹⁰_{Feb. 10} reported the case of a woman who was delivered under extremely unfavorable conditions, there being especially a fetid discharge from the vagina. Ten or twelve days later a large quantity of blackish, sanious pus, very fetid, was discharged from the uterus. Intra-uterine irrigations were kept up for six or eight days, and no sign of infection occurred. The *débris* of the placenta was never expelled.

McCann and Turner, ²_{Dec. 24, 78} from examination of a certain number of cases, conclude that sugar of milk is present in the urine during lactation. There is also glucose. In most cases the greatest quantity appears toward the fourth or fifth day, depending upon the condition of the breasts, the quantity and quality of the milk, and the manner in which the child nurses. In 100 cases the average quantity of sugar was 35 per cent. When lactation is diminished or suppressed, the quantity of sugar diminishes or disappears. When the production and use of the milk are equal, the quantity of sugar is very small.

COMPLICATIONS OF LABOR.

Exaggerated Rotation of the Head.—Budin ¹⁹⁴_{July} stated that he had, some time ago, published two cases of vertex presentation in the occipito-posterior position, in which spontaneous rotation of the head during labor had not been followed by rotation of the trunk. The occiput becoming disengaged under the symphysis pubis, the back remained behind and freed itself in this position. He also recalled, in this connection, two similar cases published by Paul Dubois, ⁷³_{p. 46, 77}. Since that time he had observed, either in hospital or private practice, a number of similar cases,—twice during spontaneous labor, once after extraction of the pelvic extremity, five

times after the application of forceps, and once where it had been possible to turn the head with the finger. Budin alluded to the harmlessness to the foetus of this exaggerated rotation, for reasons already advanced by Ribemont and Tarnier, and concluded that in vertex presentations in the occipito-posterior position, where intervention is necessary in order to terminate labor, the occiput may safely be brought under the symphysis pubis, thus avoiding the almost fatal lesions due to occipito-sacral disengagement. Frémin,²¹⁰⁹ a pupil of Budin, has written an interesting thesis upon exaggerated rotation of the head.

Hæmorrhage.—Budin,¹⁹⁴_{p.110} in a paper upon hæmorrhage due to rupture of the circular sinus, states that this origin of hæmorrhage during pregnancy and labor had been noticed by Jacquemier, and especially by Duncan, who regarded it as frequent; it is not, however, mentioned by classic authors. The author has collected the following seven cases, with preparations, showing clearly the correctness of the observations of Jacquemier and Duncan: 1. Multipara. Hæmorrhage at the moment when dilatation was almost complete. Artificial rupture of membranes; cessation of hæmorrhage; spontaneous delivery. No trace of anterior separation, but rupture of circular sinus. 2. II-para. Repeated and abundant hæmorrhage during pregnancy; artificial rupture of membranes; cessation of hæmorrhage; labor. No trace of detachment of placenta, but hæmorrhage of circular sinus. 3. Primipara. Grave hæmorrhage when labor was far advanced, immediately after rupture of membranes. Application of forceps. Child could not be resuscitated. Rupture of circular sinus. 4. II-para. Abundant hæmorrhage at six and one-half months. Premature labor. Rupture of circular sinus. 5. Multipara. Three successive hæmorrhages between fifth and sixth month. Premature delivery. Placenta attached to fundus of uterus. Rupture of circular sinus. 6. Multipara. Hæmorrhage at eight and one-half months. Artificial rupture of membranes. Placenta inserted at fundus of uterus. Rupture of circular sinus. 7. II-para. Violent shock during pregnancy. Hæmorrhage; premature delivery; rupture of circular sinus; normal insertion of placenta.

From these cases it appears that, without disputing the pathogenic rôle of placental detachment in hæmorrhage due to vicious insertion, rupture of the circular sinus may be the cause of hæm-

orrhage when the placenta is viciously inserted in the inferior segment, and even when it is normally inserted in the fundus of the uterus. If the placenta is inserted near the internal orifice, there must be still another predisposing cause; there will then be external hæmorrhage. If the placenta, on the contrary, occupy a position at the side, or one at the fundus, the hæmorrhage is exclusively internal. If the blood, tearing the membranes, pass the internal orifice, there is combined internal and external or mixed hæmorrhage. If, on the other hand, the internal hæmorrhage is not great, and the membranes offer a certain resistance, a clot is formed, which extends to the sinus and causes its obliteration.

As to treatment, rupture of the membranes will, in certain cases, arrest the hæmorrhage. The best measure, however, is the use of antiseptic tampons in the vagina.

Bonnaire¹⁹⁴_{p.127} observed a similar case of rupture of the circular sinus in a primipara at term, following violent emotion. There was abundant hæmorrhage, followed by labor, a mixture of amniotic fluid and blood flowing continuously from the vagina. The author had recourse to a Champetier bag and performed version when dilatation was sufficient. An infant weighing 4000 grammes (8 pounds) was extracted in a much cyanosed condition, but was resuscitated. In examining the after-birth, the circular sinus was found to be ruptured. Bonnaire remarks that tamponing the vagina in such cases would lead to the transformation of an external hæmorrhage into an internal one. Maygrier¹⁹⁴_{July} also communicates two cases of hæmorrhage due to the same cause.

Maksud²¹¹⁰ has not only studied hæmorrhage of the circular sinus, but also rupture of the membranes in placenta prævia, and comes to the conclusion that many cases regarded as viciously-inserted placentæ are, in reality, normal. In the diagnosis of placenta prævia, the direction of the rupture should be carefully studied, only rupture parallel to the margin of the placenta being considered as indicating vicious insertion. Maksud has observed that the placenta was normally implanted in certain cases in which hæmorrhage had occurred, either in pregnancy or labor, while in other cases in which there was really a vicious insertion hæmorrhage was absent. Examination showed that in the first cases hæmorrhage was due to rupture of the circular sinus.

Harold Gurney²_{Dec.19,92} observed a case of accidental hæmorrhage

and hydrocephalus, the bleeding being due to premature detachment of a normal placenta. Version was performed and the skull punctured with an ordinary pair of scissors, the author not having his instruments with him. Recovery ensued.

Inversion of the Uterus.—Abegg³¹⁷_{May 20} reports a case of inversion after labor without hæmorrhage or syncope, the woman remaining a month in this condition. She was then taken to the maternity hospital at Dantzic, and reduction made within several days with the aid of the colpeurynter, recovery following. E. Peraire⁴⁸_{Aug.} observed a case of complete uterine inversion with prolapse, following delivery. Abundant metrorrhagia placed the woman's life in danger. Reduction was effected, with subsequent recovery. J. Mason²_{Dec. 17, '92} reports a case of uterine inversion followed by postpartum hæmorrhage. The child was born alive. After labor a supposed tumor of the vulva caused the midwife to send for the physician, who first removed the placenta and then reduced the uterus. The patient recovered. Hutson²_{Sept. 9} reports a case of spontaneous amputation of an inverted uterus which had remained inverted for three days after labor. When Hutson was called he found the patient unconscious, with the abdomen enormously distended and a putrid mass projecting from the vagina; this was the inverted uterus, which had been amputated by its neck contracting upon it. The mass was ablated and antiseptic tampons applied. Recovery took place. Bergesio⁷³⁹_{Mar. 17} observed a case of complete inversion of the puerperal uterus. The patient perceived a tumor in the vagina twelve days after labor, and, reduction being impossible, Bergesio performed amputation by means of an elastic ligature. Cure followed.

Lautour, of Oamaru,⁵⁵⁷_{Oct. '93} observed the case of a primipara who was delivered normally. Inversion followed traction upon the cord, causing the supposition that there was another foetus. There was no hæmorrhage. The placenta and membranes were removed, and the uterus washed with sublimate and reduced. The patient recovered. Skeels²²²_{July} reports the following case: Application of the forceps in a case caused a laceration of the perineum. After fifty minutes, delivery not being effected, slight traction was made on the cord, but without effect. As Skeels was about to make expression, he observed a tumor at the vulva; it was the uterus, inverted, with the placenta adherent. He reduced the organ and

delivered the woman artificially. Several minutes later hæmorrhage occurred, but was controlled by vigorous massage. Rupture of the recto-vaginal septum also occurred. The patient recovered.

Rupture of the Uterus.—Blind ^{2111 317}_{72; p. 90} has studied rupture of the uterus during pregnancy, finding twenty-two cases in literature. The seat of rupture is always the fundus, there being a thinness of the walls in the region of the rupture, which frequently coincides with the point of insertion of the placenta. Blind reports two cases observed in the clinic at Strasburg.

Abel ³¹⁷_{No. 1, p. 11} cites the case of a woman of 35 years, in her seventh pregnancy. After labor had lasted two hours and a quarter, spontaneous rupture of the uterus occurred, the head resting on the pelvic floor. The patient died within a few hours. The abdomen was markedly pendulous, there was hydramnios, and the child was very large. In the discussion following the reading of this paper, Döderlein cited a case of Hoffmeier in which there was hydrocephalus, producing a thinness of the inferior segment; at the first pains a rupture of the inferior segment of the uterus, which was passively dilated, took place.

Wasten ²¹_{No. 19} reports the case of a woman whose ninth child was extracted with forceps. Examination showed that the placenta had passed into the abdominal cavity. The uterus was amputated, and drainage secured through the vagina. Recovery followed. The seat of the rupture, which was in the placental insertion, seemed to have occurred spontaneously.

L. M. Bossi ¹⁶²_{July 26} reports two cases of uterine rupture during labor, one with penetration of the foetus into the abdominal cavity. Porro's operation was performed, with reduction of the pedicle. The patients both recovered. Audebert ⁷⁰_{Apr. 10} cites two cases, the first a shoulder presentation. A physician had performed version and extracted a living child. The author being called on account of a post-partum hæmorrhage, recognized a laceration of the uterus extending as high as Bandl's ring. The patient speedily succumbed. In the second case rupture was caused by the application of forceps before dilatation was complete, the head not engaging. Moussous performed version and delivered a dead infant. The patient died from general infection and septic peritonitis of rapid evolution. At the autopsy considerable traumatism was found, the rupture having destroyed the entire left antero-

lateral portion of the uterus and led to great effusion of blood in the lesser pelvis.

H. Fehling⁸¹⁷ details a case of contracted pelvis measuring 7.5 to 7.7 centimetres true conjugate. The first labor was spontaneous, the child being small; the second labor was followed by spontaneous rupture of the uterus. The patient was taken to the clinic, where perforation and craniotomy were performed, followed by laparotomy, which showed two ruptures. A careful toilet of the peritoneum was made, and the uterus disinfected, iodoform gauze being placed in the vagina. The ruptures were sutured, and the abdominal cavity drained with iodoform gauze. The patient recovered without any complications.

Fehling recommends suturing in most cases of uterine rupture, unless very extensive, when Porro's operation should be performed. Suture should also be done when the child has been delivered naturally; it is not surgically correct to submit a large wound to the possible dangers of hæmorrhage and septicæmia. The edges should be exactly united. If laparotomy is not decided upon, the rupture should be tamponed with iodoform gauze, according to Leopold, but without washing out the uterus with 2-per-cent. carbolic-acid solution, as that author recommends. If another pregnancy occur, the greatest care will be necessary. Wesley Bovee²⁷ reports two cases of rupture during labor in women suffering from cancer of the cervix or the uterus itself. E. Bedder⁸¹⁷ reports a case of colporrhaphy in labor, with extirpation of the uterus, for supposed extensive rupture; there was, however, only a rupture of the vaginal wall, the cervix remaining adherent posteriorly. The woman recovered.

Retention of Urine.—Ouimet¹²² states that when called into a case of labor, whether at the beginning or not, the physician should inquire into the condition of the bladder during pregnancy and the time of the last micturition. The genital organs should also be carefully examined. A small quantity of urine remaining in the bladder may lead to grave disorders, and it should therefore be emptied, either naturally or artificially. This is especially necessary when any operation is to be performed, as version, Cæsarian section, application of forceps, etc.

Lacerations of the Cervix.—Cadiergues²⁰¹² gives the etiology of this accident, atresia of the neck, etc., and especially the pass-

age of the head last, being the principal factors. Hæmorrhage is the symptom most prominent, and the differential diagnosis is made between the hæmorrhage in laceration and that in uterine rupture, inertia, premature detachment of the placenta, rupture of varicose veins in the vagina, perineum, vulva, or clitoris. Treatment consists of tampons, or, if the hæmorrhage is very grave, suture of the lips of the laceration.

Uterine Rotation.—J. H. Ferguson³⁸ speaks of the clinical importance, in pregnancy and labor, of rotation of the uterus upon its axis, this taking place most frequently to the right. It exists outside of pregnancy, when it becomes exaggerated, the ovaries being thus displaced, the left forward and the right backward. The danger is from shock, which may follow a blow, a fall, or the examination of the obstetrician. Post-mortem shock may be due to injury of ovaries.

Uterus Bicornis.—Kleinwächter²⁵⁶ gives the history of a woman with a bicornate uterus, two successive pregnancies in the left horn having terminated by abortion. The diagnosis was erroneous on both occasions. The second time curettage enabled the physician to extract the remains of the placenta and foetus.

Physometry in the Diagnosis of Putrefactive Processes.—Mme. Henry⁴⁸ publishes an interesting memoir on this subject, based upon experiments in ten cases of decomposition of the placenta, of the amniotic fluid, and meconium. The author insists upon rigorous antisepsis in such cases.

DYSTOCIA.

Fœtal Dystocia.—Potocki⁷³ describes his method of lowering the forward foot in cases of incomplete breech presentation. The breech being still in the superior portion of the uterus, and not yet engaged, the hand is introduced into the vagina and then into the uterus; the left hand is used if the case is left sacro-iliac, going to the right of the foetus and, seeking the posterior surface of the left thigh, reaching to the popliteal space. Here pressure is made upon the posterior surface of the thigh, which generally yields at once, and the leg can then be brought down entirely with the index finger. This method has always succeeded in Pinard's clinic, no matter at what point of engagement the breech happened to be. The right hand is used for a right sacro-iliac pres-

entation. Loviot, Gaulard, Fochier, Maygrier, Porak, and Olivier, in the discussion, did not agree entirely with Potocki's views. Budin recalled the fact that Spiegelberg, Mangiagalli, and others had used the same manœuvre; he, himself, had tried it in 1879, but had found it unreliable. Bonnaire,⁸ in some experimental and clinical researches, obtained results in contradiction to those of Potocki.

Bourrus and Lefour¹⁸⁸ report a case of shoulder presentation in which, the membranes having ruptured, the amniotic fluid escaped. The child presented by the shoulder in the left anterior iliac position. The contractions were extremely frequent and painful. Dilatation was complete, version being rendered very difficult by contraction of Bandl's ring. The child was delivered alive, and the mother recovered. Prunac¹⁰⁰ describes a case of shoulder presentation in the first position, with procidentia of the arm; a dead child, bent double, was delivered by the breech. The mother died on the third day from uræmic dyspnœa.

Bar¹⁹⁴ reports the case of a foetus born by the shoulder by spontaneous evolution, and still contained in the ovum. The patient was about seven months pregnant, and suffered from placenta prævia. The membranes were ruptured, and prolapse of the cord followed. The child was delivered by spontaneous evolution, the placenta descending under the pubis and the ovum being expelled entire.

Rogie²²⁰ reports a case in which the midwife made such traction on the trunk that the soft parts of the neck were lacerated, the rachidian canal was opened, and the cord torn. An hydrocephalus was present, the liquid from which escaped by the rachidian canal, the head thus becoming flattened, permitting delivery, the body remaining adherent to the head. J. D. Evans²⁸² also reports a case of dystocia due to hydrocephalus, in which he correctly followed Tarnier's method of opening the spinal canal in the dorsal region, and introducing a rubber catheter, which gave exit to the liquid. Delivery was then easy.

In a case seen by Strassmann,⁸¹⁷ a cystic tumor on the neck of the foetus was the cause of dystocia. Perforation of the skull is generally necessary in such instances. The case was one of breech presentation, and the quantity of amniotic fluid which escaped was from 3000 to 4000 cubic centimetres (6 to 8 pints). The child

could easily be extracted as far as the umbilicus, the arms could be freed, but no further progress was possible. Introduction of the hand enabled the author to make a correct diagnosis; the tumor was punctured, and delivery easily effected.

Schwyser⁹⁵_{R.48.H.2} saw a case of dystocia due to considerable distension of the bladder in the foetus. Embryotomy became necessary. Schroeder²¹¹²₉₁ has reported twelve similar cases.

E. Blanc²²⁸_{Feb.15} calls attention to soft head in the foetus as a hitherto undescribed cause of difficult labor. This defect in ossification should be looked for especially in first births, the dangers being great dystocia, inclinations, rotations, vicious flexions, arrest in the hollow of the pelvis or floor of the perineum, necessitating intervention; in every case tedious labor increases the danger of cerebral and bulbar compression, already facilitated by incomplete ossification of the cranial vault.

Gruwell⁹_{May.15} cites a case of fracture of the femur produced by an energetic contraction. There was prolapse of the cord with procidentia of the right foot and the left hand, which latter was returned. A severe pain was followed by the expulsion of the child, a girl weighing 9 pounds (4½ kilogrammes). The femur was fractured at the moment of delivery, at the union of the upper third with the two lower thirds.

Gray⁵⁹_{May.15} describes a case of difficult labor from dorsal displacement of the arm of the foetus in a multipara of 40 years. Dilatation was complete, but the head did not descend, and Gray attempted version, when he found that the right arm was passed up behind the neck, thus preventing descent. The child was easily extracted, but was dead.

C. Read,²⁶⁷_{June.15} after two fruitless attempts with the forceps, extracted by version a child weighing 16 pounds (8 kilogrammes). The same patient had the year before been delivered of a boy weighing 14 pounds (7 kilogrammes). A. Sloan extracted by forceps a child weighing 4780 grammes (9½ pounds), having passed full term. There was premature ossification of the bones of the head. The child was born dead, owing to fracture of the ossified cartilaginous furrow, with hæmorrhage in the vertebral column and the brain.

Ensor²_{Mar.11} gives an example of dystocia due to multiple pregnancy, and shows the advantage of the genu-pectoral position

in certain difficult presentations. A patient, aged 39 years, was in labor at the eighth month, shoulder presentation making version necessary. All went well until the head was to be delivered, when a second head was found in the hollow. The woman was then placed in the genu-pectoral position, the second head pushed back, and the first extracted. Both children were dead. The puerperium was normal.

Maternal Dystocia.—Jasper Gargill⁶_{June 10} describes a case of labor impeded by vaginismus, which yielded readily to chloroform, the child being rapidly delivered. F. Hamilton⁵⁴⁷_{Dec., '98} mentions prolapse of the vagina as a complication in a young primipara. Labor was normal, but the prolapse prevented the passage of the head. The forceps were used and the child extracted with difficulty, being dead from the excessive length of the labor.

Farriole Anglada⁹⁸¹_{Oct. 10, '98} reports a case of uterine inertia in a primipara from undue resistance of the perineum. The forceps were applied and a dead foetus extracted. Van Waters¹_{June 24} advises, in cases of uterine inertia, the introduction of the hand into the vagina, thoroughly aseptic and covered with vaselin. This leads to uterine contractions, each becoming more energetic, to drive the hand out of the vagina.

King⁶¹_{Sept. 16} recommends atropine instead of belladonna in cases of rigid os. His own results with the drug have been excellent. Wallich⁷³_{Apr.} denies that there is such a condition as anatomical rigidity of the os; Maygrier and Porak, however, have encountered such cases in their practice. S. Griffith²_{May} notes a case of hypertrophic elongation of the os impeding labor. Parro's operation was refused by the husband unless success was assured. The patient died in fifteen hours from uterine rupture. G. M. Landa⁷⁷⁸_{Apr. 5} reports a case of complete obliteration of the external orifice of the cervix by a cicatrix. This was destroyed, when dilatation and delivery followed rapidly.

Rossa⁸¹⁷_{p. 929} describes a case of labor in a woman with a uterus didelphus. A previous gestation had occurred in the other uterus. The two organs were entirely separate, each fundus measuring 6 to 8 centimetres.

Tumors.—Flaischlen,⁸¹⁷_{No. 14} in a case of labor impeded by prolapsed dermoid tumor and contracted pelvis, reduced the tumor under chloroform and extracted a living child by means of the

forceps. The mother was successfully operated on later for the tumor. Crofford²⁷_{Sept.} observed a case in which the lesser pelvis was filled with a fibrous tumor, labor lasting six days. The condition of the woman being grave, Cæsarian section or Porro's operation could not be attempted. The child was finally delivered by version. Several days later, as the patient grew worse, laparotomy was performed, but the tumor could not be excised. The appendages only were removed, but in a few days grave symptoms of septicæmia occurred, and the patient was again placed under anæsthesia, the abdomen opened, and the tumor removed by piecemeal. Recovery followed. Aust-Lawrence,²_{Sept. 16} after an experience of ten post-partum ovariectomies, concludes that cysts should be operated on during pregnancy as soon as their presence is ascertained, as they may give rise to grave trouble after labor. Frank³¹⁷_{p. 48} discusses the complications of labor due to ovarian tumors. P. Puech²³⁶_{Apr.} reports a case in which the passage of the foetal head was prevented by a cyst of the vagina; puncture of the cyst was followed by a normal delivery.

Dystocia due to Osseous Malformations and Diseases.—Groves³⁰_{July} reports a case of laparo-elythrotomy for a bony tumor of the pelvis. The child was saved, but the mother died. Groves claims that this operation is less dangerous than Cæsarian section.

Marlier¹⁸⁴_{Jan.} relates the history of a woman with markedly rachitic pelvis of the Naegelé type, complicated by prolapse of the uterus and vagina. Hæmorrhage from premature detachment of the placenta also occurred. The foetus presented transversely, and podalic version was performed, recovery following.

Budin⁷³_{Apr. 15} reports the case of a woman with a Naegelé pelvis, first seen by him, February 27, 1889, when in labor. In three previous labors, in which diagnosis had not been made, the forceps were useless, and recourse was had to cephalic embryotomy. Budin, having diagnosed the case, succeeded in extracting with the forceps a living child, weighing 3620 grammes (7½ pounds). The woman again became pregnant, and, in spite of advice to the contrary, presented herself at the hospital in labor. A loop of the cord had descended into the vagina. A living child was delivered by version, but died six days later. A sixth labor was brought on prematurely, and a living child spontaneously delivered. The woman returned to the hospital when in labor for the seventh

time, and was delivered of a living child by version. The case illustrates the value of diagnosis in cases of this kind, four living children being delivered after it had been correctly established. The author gives the following results of labors in rachitic women in his clinic from October, 1891, to April, 1893: (a) Ten centimetres and above in minimum diameter of pubic eminence: 78 labors,—68 spontaneous, 8 artificial comprising 1 embryotomy; 5 forceps deliveries, 2 versions. (b) Nine to ten centimetres: 28 labors,—15 spontaneous, 5 artificial, 2 forceps, 3 versions. (c) Eight to nine centimetres: 20 labors,—15 spontaneous, 5 artificial, 2 forceps, 3 versions. (d) Less than six centimetres: 3 artificial labors,—1 forceps, 2 versions. (e) Generally contracted pelvis: 4 labors,—1 forceps, 1 induced prematurely, 2 symphysectomies.

Results.—Mothers: No deaths in 131 labors; 10 women suffered from puerperal affections, the morbidity being 7.6 per cent. Of these 131 labors, 106 were spontaneous, 25 artificial. Children: Of 131 born, 120 left the hospital alive, 11 died (8.3 per cent.); 3 were dead before the mothers came to the hospital; those dying from various causes after birth had been delivered easily and spontaneously. None of the children artificially delivered had died. These figures may be of interest at the present time, when the best method of conducting such labors is so much studied.

As regards osteomalacia, Esser³¹⁷_{p.50} counsels castration of the woman if not pregnant. He prefers Porro's operation to induced labor during pregnancy and at term. He reports a case, with cure. Chrobak³¹⁷_{p.431} observed a case in which recovery did not take place, although castration had been performed. Labusquière⁴⁸_{Jm} claims that surgical treatment is generally demanded in such cases. Medical treatment is indicated in cases which are not urgent, or in which the disease is but beginning and should be checked. It is also sometimes of value in cases more advanced. When the disease has resisted all medical treatment, and the woman is not pregnant, bilateral contraction should be performed. If pregnant, and the physician is not called too late, the uterus may be emptied of its contents and treatment instituted as above. Generally, however, the gestation goes on to term, and the question of choice between the operation of Porro and Cæsarian section arises. At the present time, in spite of several points in favor of the second, the former appears to be the most favored. It is, however, according

to Labusquière, a matter of individual preference until a more absolute decision has been formulated. E. Seeligmann⁸¹⁷_{No. 7} performed Porro's operation in a severe case of osteomalacia, the uterine pedicle being treated extra-peritoneally. The operation was performed October 4th. According to all authors, the pains cease after operation and the bones harden. Seeligmann resolved to make traction of the entire body while the bones were still yielding. The patient bore well the severe traction employed on the first day, and in a short time declared that she felt much less pain from the weights. Nine pounds and a half were used on the left limb and eleven and a half on the right,—which was shorter and more curved,—and eleven and a half pounds on the arms. On the 14th of December the woman had increased in height eighteen centimetres, and the right limb had become almost as long as the left. The pain and articular swelling had disappeared. Examination showed that the pelvis had undergone a marked improvement in shape.

Labadie-Lagrave and Ricklin¹¹²⁸_{Sept. 20} claim that castration in puerperal osteomalacia is almost always followed by prompt improvement, and sometimes by recovery. This result they attribute to the direct influence of castration upon the nutrition of the bones by destroying a morbid centre. The operation is, however, not to be lightly considered, especially at a time of life when the organs are in full activity; the more so since osteomalacia is susceptible of cure under various treatments, purely medical, combined with good hygiene and proper food. In a young woman, therefore, everything should be tried before resorting to castration. This applies also to women approaching the climacteric, in view of the fact that the menopause exercises a beneficial influence upon the symptoms of osteomalacia.

Artificial Dilatation of the Cervix.—Dührssen³¹⁷_{p. 529} employs the colpeurynter for this purpose, filled with about one litre (quart) of water, reaching the size of a foetal head. He draws upon the tube in such a way as to produce pressure from above downward, until the colpeurynter passes through the cervix and falls into the vagina. Dührssen reports 22 cases: 1 of artificially induced labor, for contracted pelvis, 3 of placenta prævia, 5 of version and extraction in flat pelvis, 6 of version and extraction for vicious presentations, 4 cases in which there was danger for mother or child, and 3 in which the pains were incomplete, owing to premature

rupture of membranes. In 21 cases the cervix was permeable one or two fingers' length. In order to practice the method the neck must be permeable at least one finger's length. This is generally the case in multiparæ toward the last months of pregnancy. If necessary, in primiparæ, the dilatation can be effected with a sound. In four cases in which the neck was permeable for a finger's length, dilatation was accomplished in several minutes, and version and extraction effected, mother and child doing well. In ten cases the cervix was permeable for two fingers' length, one child, presenting by the breech, dying from compression of the skull, and one woman from eclampsia. At the autopsy no trace of laceration of the cervix could be discovered. In one case, in which the colpeurynter was used, the membranes were intact and the presentation was changed. To avoid this accident it is better to rupture the membranes before applying the colpeurynter. In five cases hæmorrhage occurred, necessitating especial treatment in four cases. In a sixth case, besides the mechanical dilatation, deep incisions of the cervix were necessary. No untoward effects followed, the cervix resuming its normal shape.

Dührssen regards the method as of especial value in placenta prævia; the membranes being ruptured, and hæmorrhage having ceased, the ordinary measures are employed; but if the hæmorrhage continue, the colpeurynter should be introduced and traction made. It is also of value in cases of contracted pelvis with vicious presentations, when the membranes have been ruptured. In five cases of flat pelvis, Dührssen performed artificial dilatation, followed by version, four of the children being alive. In six cases of shoulder or head presentation, with prolapse of the arms, all of the children lived. In cases of uterine inertia, after premature rupture of the membranes, one-fourth or one-half a litre ($\frac{1}{2}$ to 1 pint) of water is sufficient. The foetal heart-beats must be carefully watched. Dührssen regards this mechanical dilatation of the cervix as of more value than symphysectomy, since it is applicable to so many more cases.

Incisions of the Cervix.—The same author⁹⁵_{B.11, H.1, 2} discusses the pathology of the portio vaginalis uteri, and formulates the following conclusions: 1. The cervix is composed of two parts, a peripheral and a central. 2. The peripheral portion is distinguished by its richness in elastic fibres. 3. These form a superficial net-work

under the epithelial cells, and a large and deep net-work surrounding the vessels. The two are connected with each other and with the elastic fibres of the vagina. 4. This anatomical arrangement renders possible during labor the opening of the uterine orifice until it is completely unfolded, the central portion remaining attached to the uterus, the peripheral portion fusing with the vaginal walls. 5. This unfolding takes place under the action of the uterine muscles, making traction from above downward, and under the horizontal pressure of the bag of waters or the presentation. 6. In the newborn and in aged women the net-work of elastic fibres is entirely absent; in women with infantile uterus it is incompletely developed. 7. Rigidity of the cervix in primiparæ depends upon the lack of these elastic fibres. 8. In such cases attempts at mechanical dilatation are irrational. When there is danger for mother and child, deep incisions are necessary. Dührssen has performed this operation thirty-five times, saving the mother in every instance and losing but one child. S. Marx²⁷ regards the operation as indicated when the supra-vaginal portion of the neck has disappeared. To that point dilatation may be effected with the fingers or with a suitable instrument. This result obtained, deep incisions are made with a scissors or bistoury upon four points of the circumference of the orifice. Marx has performed this operation twice with success.

Premature Labor.—Tarnier⁷³ gives the statistics of artificial premature labor in his service from the 1st of November, 1890, for a period of two years. Of 44 such cases, 29 were induced with the bag and retractor, 3 with the bag and Krause's sound, 2 with the Champetier bag. The mortality of the mothers was 2.2 per cent., a single death being independent of the method and due to pernicious anæmia, thus making the mortality in reality nothing. Three children died (18 per cent.); four were deadborn, and four died after birth; 82 per cent. were living. Tarnier believes that, inasmuch as symphyseotomy and Cæsarian section have not given similar results, this method should not be abandoned. Charles, of Liège,²⁵⁸ has fixed, for his rule of conduct, the induction of premature labor when the pelvis measures seven centimetres. Paquy¹⁹⁴ relates a case of moderate contraction of the pelvis in which artificial labor was induced. The first attempt was made on the 6th of February, and labor did not terminate until the 18th.

During this time recourse was had to the instrument of Hubert, of Louvain, two Treub's dilators filled with 300 to 350 grammes ($9\frac{1}{2}$ to 11 ounces) of water, to a Tarnier dilator and a Tarnier bag. Barton Cooke Hirst relates the case of a young woman of 21 years in whom an attempt was made to induce labor for seven days, by means of bougies, injections of glycerin, and Barnes's bags. Finally, on the seventh day, the pains commenced.

Bulschbeck⁸¹⁷ gives the statistics of artificial labor at Leopold's clinic. During three years and a half there were 12,210 labors. Of these, 81 were premature, 45 of which had previously been published. Of the 36 remaining, 24 children were born alive and 12 dead (1 twin pregnancy). The mortality for the mothers was nothing. Bulschbeck insists upon the importance of accurately measuring the canal, and of studying the form of the contraction and its diameter in every direction. Labor should not be induced before the end of the thirty-second week (224 days). On an average, the labor was brought on in these cases toward the end of the thirty-fifth or thirty-sixth week, and in certain cases at the end of the thirty-eighth week. The presentations should also be taken into account, the prognosis being better for a vertex than for a breech presentation. Version was performed 13 times out of 36 cases. In 27 cases, Krause's method was employed, in 9 that of Tarnier or Barnes. In Krause's method, the vagina is washed by a 1-to-4000 solution of corrosive sublimate, the cervix grasped with a Museux forceps, cleansed with a tampon soaked in a 5-per-cent. solution of carbolic acid, and the vagina packed with iodoform gauze.

The insertion of the placenta should also be ascertained, and the membranes should not be prematurely ruptured. Caution should be exercised as to provoking labor in a primipara, since labor often terminates favorably in a contracted pelvis. The prognosis is not so good for the child when the pelvis is contracted in its transverse diameter. Premature delivery is contra-indicated when the pelvis measures 7.5 centimetres, or when it is flat. If the head cannot descend into the pelvis, the bag of waters being intact and dilatation complete, version and extraction should be performed whenever possible.

E. Silva²¹¹⁶ claims that Treub's bag, intermediate between that of Tarnier and Champetier de Ribes, is easy of application, even

in primiparæ. Like the latter, it may attain a considerable size without being expelled until dilatation is far advanced. Its use makes recourse to other measures unnecessary. Being elastic and changing its shape easily, it does not push back the foetal head nor render liable abnormal presentations or prolapse. The length of the labor is about the same as when the Champetier de Ribes bag is used. Its price is moderate, and it can be thrown away after use, which is desirable from an antiseptic stand-point. The conclusions of Silva do not seem to us to be warranted by the facts which he adduces.

Forced Delivery.—Rozario Vitanza ⁵⁸⁹_{Dec. 12, '92} cites cases of difficult labor, by which he endeavors to show the value of multiple incisions of the neck, followed by version and extraction of the foetus by the method of Braxton-Hicks or Hüter. Cæsarian section should, in his opinion, be reserved for cases in which an insurmountable obstacle to forced labor exists.

Forceps.—Loviot ¹⁹⁴_{Jan. 13} reports a case with the following peculiarities: Movable foetal head above the superior strait until the moment of labor in a primipara with normal pelvis. Labor shortly before term; premature rupture of membranes; placenta inserted partly on inferior segment. Loviot ¹⁹⁴_{Jan. 13} insists upon the relation of these features. The case was one of right posterior occipito-iliac presentation, with uterine inertia. Manual reduction of the head was made, followed by modified application of forceps (right blade first, no unlocking).

Vallois ²³⁶_{Aug.} cites a case of brow presentation. According to his opinion, an effort should be made to secure a regular grasp in such cases, and, if this is not possible, at least to make an oblique application of the forceps. Masse, ¹⁸⁸_{June 18} in a case in which the forceps were applied on account of uterine inertia, observed laceration of the perineum and of the recto-vaginal septum. Charles, of Liège, ²⁵⁶_{Dec. 15, '92} reports two cases in which the pelvis measured from 8 to 9.5 centimetres. The forceps were applied at the superior strait and version performed. The children were living, one having a considerable depression of the skull, produced by the promontory. The puerperium was normal. Contrary to the opinion of Fritsch, Charles believes that, in cases where the head is mobile above the superior strait, the forceps may be of great service. He recommends oblique application with one hand, the head being

firmly held by an assistant. (See also pages I-20, I-21, and "Symphyseotomy," page I-35.)

Version.—McGillicuddy¹_{Dec. 31, '92} discusses the advantage of version by the breech over that by the feet. It is especially indicated after escape of the amniotic fluid and presentations in which the shoulder rests against the pelvis, and is easy in such cases.

Rosenthal⁸¹⁷_{p. 126} gives some statistics from Leopold's clinic of version and extraction in narrow pelves. From January, 1888, to May, 1892, there were 6090 labors and 143 versions (2.3 per cent.); 16 of these were for placenta prævia, the patient being generally placed on her back and an anæsthetic given. Version was made by one or both feet. There was sometimes twisting of the cord. Extraction was made after version, except in 11 cases, in which spontaneous version as far as the umbilicus was awaited. In 9 cases the cord was found between the thighs, 2 of these children being dead. In 2 cases the cord was ruptured during delivery; in 7 cases the arms were raised, impeding labor; in 1 case the index finger was in the mouth, and the other hand about the neck, the transverse diameter of the head thus passing the true conjugate of the pelvis. In such cases slow but constant pressure was made upon the head, which finally slipped beyond the contraction. In 8 cases the head would not pass, and it was perforated posteriorly. The forceps were applied twice to the back of the head, one of the infants dying soon after birth. Version for contracted pelvis was performed 102 times, the puerperium being normal in 81 (79.4 per cent.). Of 141 cases of version, 6 of the patients died (4.2 per cent.), 2 from infection; 31.6 per cent. of the children died. Of 53 children extracted on account of contracted pelvis, 79.2 per cent. were born alive. There were 32 cases of flat pelvis; one child was dead before birth, and a second died on the third day from syphilis; 80 per cent. of the children lived. There were 48 cases of flat pelvis generally contracted, 63 per cent. of the children being born alive. One of the reasons for the difference in mortality was that in the greater number of flat pelves version was performed on account of a diameter of more than eight centimetres. In 19 cases of generally contracted pelvis, 12 children were born alive (63.2 per cent.). The flat pelvis is, therefore, more favorable for the child. Rosenthal formulates the following conclusions as regards the degree of narrowness of the

pelvis: 1. In the flat pelvis, even with a marked degree of contraction, version is justified on account of the child, the best results being thus obtained even when the child is large, provided the latter has had no previous trouble and the uterine orifice presents no obstacle. 2. In generally narrowed flat pelves the number of deaths is greater; however, even when the pelvis is very narrow and the child large, the latter may be extracted alive. Version should therefore be attempted before recourse is had to perforation. 3. In cases where the pelvis was generally contracted and rachitic, but not flat, 12 out of 19 children were extracted alive by means of version.

Rosenthal has also studied the influence of rupture of the membranes and of opening the cervix, and concludes that, whenever possible, version and extraction should be performed immediately when the uterine orifice is almost or entirely open, and immediately after the escape of the amniotic fluid. The best results are thus obtained. In placenta prævia, however, version should be made at once, without taking the life of the child into consideration. The narrower the uterine opening, the greater the number of lesions for the mother. The length of time which has elapsed before rupture of the membranes does not constitute a source of danger for the child nor render version more difficult. Extraction should follow version as soon as possible, with the cervix fully dilated and the bag of waters intact. In cases of premature rupture of the membranes, version should not be practiced until the cervix is sufficiently dilated to permit of immediate extraction. It is therefore desirable that the bag of waters remain intact until version and extraction can be performed without danger to mother or child. When the amniotic fluid has escaped, dilatation of the cervix should be obtained as soon as possible. It is a mistake in these cases to rupture the membranes before dilatation is complete. Version and extraction may be made successfully, both for mother and child, in flat pelves having a true conjugate of 7 centimetres, and in generally contracted pelves with a conjugate of 7.5 centimetres. All the conditions of the case must be well weighed in advance,—the presentation and position of the child; the form of the pelvis, its degree of contraction; the dilatation and condition of the cervix; the quantity of amniotic fluid; the action of the bag of waters. Other important points are the size of the child in relation

to the dimensions of the pelvis, the resistance of the bones of the skull, and the vital condition of the child. If all these features be taken into consideration, still better results may be expected from version.

Embryotomy.—Zeithmann⁸¹⁷ studies the subject of craniotomy, basing himself upon one hundred and twenty-one cases in Leopold's clinic from 1889 to 1892. He notes an increase in favorable results from the operation in later years, owing to antiseptics, in particular the use of corrosive sublimate, and careful disinfection of the external genitals. The mortality at this clinic was 1.6 per cent. The author gives the following conclusions: 1. If the infant is dead and natural labor is retarded in such a way as to be dangerous for the mother, craniotomy is indicated, as facilitating labor. 2. If the child is living and the mother in danger, the life of the child should be regarded as of less value than that of the mother; however, an attempt should be made to save its life by the forceps or by version, if the size of the pelvis and the condition of the mother, and particularly the soft parts, permit. If not, then perforation should not be delayed. 3. If the child is living, the mother not in immediate danger, and the size of the pelvis, in its relation to the head, permits the hope of a spontaneous labor (which has occurred in pelves measuring 7 and even 6.5 centimetres), or if delivery by version or forceps is possible, these should be preferred. If all the conditions necessary for a Cæsarian operation do not exist, the physician is justified in performing craniotomy on the living child. 4. While in a clinic attempts may be made, by means of Cæsarian section, to save the child, the general practitioner is obliged to have recourse to evacuation of the skull, as being less dangerous to the mother. In such cases symphyseotomy is to be advised rather than Cæsarian section. 5. With rigorous antiseptics, craniotomy, even in hopeless cases, if done in time, offers the most favorable prognosis for the mother, and gives better results than Cæsarian section.

Kœttnitz⁶⁹ gives an unusual indication for craniotomy in a case of twin pregnancy. The first delivery was spontaneous. The second child presented by the vertex, with prolapse of one foot and hand. Not being able to perform version, Kœttnitz practiced craniotomy.

Cephalotripsy.—Oui¹⁸⁸ observed the case of a woman in her

ninth pregnancy, the eight previous labors having been normal and spontaneous, in spite of the fact that the pelvis measured but 9 centimetres. A face presentation was transformed into vertex, two applications of the Tarnier forceps having been without result. The child died and cephalotripsy was performed. On questions whether symphyseotomy was not indicated in this case.

Basiotripsy.—E. Gigon²¹¹⁷ gives the following indications for basiotripsy: 1. It is the operation of choice whenever the fœtus is dead, and should be preferred to the forceps because more easy of performance. 2. When the child is living and has not suffered, it should be rejected on principle. 3. If the vitality of the child is gravely compromised, and when forceps and version have both failed, it should be resorted to. 4. In cases of hydrocephalus or monstrosity, the life of the child is without value and should not be respected. 5. The obstetrician should respect the formal refusal of the other to submit to a bloody operation, and should in such case perform basiotripsy, even if the child be living.

Detruncation.—Heinricius¹⁶²_{July 28} contributes a paper on the use of Braun's hook in neglected shoulder presentations, giving the history of the use of this instrument in different countries, and the method of application, as based upon five personal cases. He concludes that Braun's hook has several advantages over other instruments used for the same purpose. Sharp instruments are dangerous on account of the ease with which the uterus may be wounded or the operator himself injured; the scissors-shaped instruments render decapitation tedious, while the fingers of the hand-making traction on the neck may be cut; the snares, articulated saws, and other instruments used are too complicated and difficult of application. Braun's hook is a very simple instrument, solid, cheap, easily cleaned, without danger to operator or patient, ordinarily easy of application, and enabling the operation to be rapidly performed.

Cæsarian Section.—A. Murray²⁷_{Apr.} states that this operation is indicated—the child being alive and the sacro-pubic diameter being less than sixty-three millimetres—in cancer of the cervix, where it should be performed at the beginning of labor; in cases of Robert and Naegelé pelvis, not favorable to symphyseotomy; in cases of tumors preventing the delivery of the child. Porro's operation is better than the classic Cæsarian section if the child is

dead and the mother infected. H. Grandin,²⁷_{Apr.} in discussing the relative merits of embryotomy, Cæsarian section, and symphyseotomy, inclines toward Cæsarian section performed early.

E. Weskeke⁷⁷_{July} gives the history of a primipara who consulted him for pain in the kidneys. She denied absolutely having had sexual intercourse. The physician hesitated between a diagnosis of pregnancy and cyst of the ovary, but inclined toward the former. Several days later symptoms of labor appeared. On examination, the pelvis was found to be vicious and deviated, while there was ankylosis of the femur. Cæsarian section was performed and a child was extracted, which cried a little, but did not live. The mother died on the fourth day. Guéniot¹⁹⁴_{Jan. 12} operated, with success for mother and child upon a rachitic dwarf, in whom the subpubic diameter was but fifty-five millimetres. The child, like the mother, was rachitic. Simon⁸⁴_{No. 11} performed successfully two Cæsarian sections for narrow pelvis. Hubert⁹²_{Jan. 21} performed the operation on a rachitic patient, the presentation being shoulder, with prolapse of the arms, and the child being dead. The narrowness of the pelvis rendered version impossible, and embryotomy could not be performed. The mother recovered. Zinke⁴²⁸_{June} obtained success by means of the modern Cæsarian operation in a woman with contracted pelvis, the transverse and oblique diameters being especially small. Griffith²_{Mar. 25} reports a case of Cæsarian section for rachitic deformity, the antero-posterior diameter being two inches and three-quarters. Mother and child did well. Palmer Dudley⁴⁶²_{Mar.} reports the case of a woman upon whom he performed, with success, the operation for considerable narrowing of the pelvis. He regards craniotomy as indicated when the mother has been for a long time in labor under unfavorable conditions, and when the life of the child has already been compromised. Van den Branden²⁵⁸_{June 15} performed Cæsarian section in a case of very narrow pelvis, both mother and child doing well. Stande⁸¹⁷_{p. 777} reports three cases. A. Fischer³¹⁷_{p. 124} reports a case in which the indications were absolute. Capetillo⁷⁸⁴_{v. 5, p. 49} performed Cæsarian section for cancer of the uterus and vagina. The child lived, but the mother died. Van der Poll⁶⁷³_{Nov., '92} obtained the same result in a case of pelvic tumor in a woman who had previously borne two fine children. G. Mitchell²⁷_{Sept.} successfully performed the operation in a case of voluminous pelvic tumor. Picqué,¹⁰⁰_{Mar. 28} in a case in which

a fibrous tumor occupied the hollow of the pelvis and was united with the uterus, saved both child and mother. R. Favell reports a case of fibrous tumors obstructing the lesser pelvis. Cæsarian section was performed, the child living and the mother dying in thirty-six hours.

Olshausen³¹⁷_{p.457} presented before the Breslau Gynæcological Society the uterus of a woman who, eighteen months previously, had undergone Cæsarian operation. The only trace of the suture, which was catgut, was a depression of four millimetres in length. Olshausen does not agree with Säger in regard to catgut, and believes that it may be used instead of silk. Corner³¹⁷_{p.297} has studied fifty cases of Cæsarian section in Leopold's clinic. The mortality, 13.2 per cent., is much greater than with craniotomy; if the cases be omitted in which death was not imputable strictly to the operation, the percentage is 4.2. The patients were disinfected with 1-to-1000 corrosive sublimate, 5-to-100 carbolic acid, corrosive sublimate (1 to 4000 or 1 to 2000) or lysol (1 to 100) being used for vagina and cervix. The sutures employed were silver wire, which has its advantages and disadvantages; later, chromicized catgut was used, but this also has its inconveniences, not being absorbed, as is supposed. Silk was employed for the uterus and abdominal walls. To control hæmorrhage, a rubber tube was placed about the cervix, moderately tightened, and held by a forceps. This procedure sometimes caused atony of the uterus, owing to the tube being too tight. It should not be done too soon. Compression of the uterine cervix with the hand has also been recommended in hæmorrhage, but this is an uncertain procedure, the hand quickly becoming fatigued. Corner cites a case in which this plan was fatal. He states that when the general practitioner is called upon to decide between Cæsarian section and perforation, not having the same advantages as in a clinic, he should decide in favor of the latter as less dangerous for the mother; but in a maternity the rule before advanced holds good, viz.: If a natural delivery be delayed, the child being alive, if it cannot safely be delivered by version or forceps, Cæsarian section should be performed in order to save its life, providing the mother and relatives consent and the necessary conditions exist. Noble²⁷_{p.11} claims that in typical cases Cæsarian section is without danger; the operation should be performed preferably before labor has commenced, and

never after the first stage; the classical operation should be preferred to puerperal hysterectomy, for, while being more advantageous, it also preserves the fruitfulness of the mother. Puerperal hysterectomy is preferable in certain cases, such as those seen too late, or in which infection of the genital canal or atony of the uterus are to be feared, as well as in cases complicated by large fibroid tumors. Symphyseotomy will probably replace the Cæsarian operation in certain cases. Embryotomy is no longer justifiable as an operation of choice when the child is living.

N. Charles⁵² presented to the Belgian Academy of Medicine a paper on three new conservative Cæsarian operations performed by him at the Maternity of Liège, with success for mother and child. In the first case the pelvis measured 6.75 centimetres, in the second 7 centimetres, and in the third, upon whom two Cæsarian sections were performed, 6.25 centimetres. From these cases the author draws the following conclusions: 1. The Cæsarian operation is not difficult, and is available to all practitioners who know how to use a bistoury. 2. With antisepsis and the usual precautions there is every chance of success if the patient does not suffer from some serious disease, as eclampsia, uræmia, rupture, weakness, or collapse. 3. As regards the operative technique, the author has found it necessary to make the incision upon the fundus of the superior portion of the uterus, the abdominal incision being suitable, its centre being near the umbilicus. 4. Preventive abdominal sutures and elastic ligature of the uterine pedicle are useless. 5. After superficial incision with the bistoury, the opening may be made with the finger, this being easy, innocuous, and rapid. This manœuvre of Guéniot's he regards as useful and desirable. 6. After the deep sutures, sero-serous sutures should be applied, after the method of Sänger, preparation of the uterine wound being unnecessary. These conclusions were not admitted without restriction by the committee charged to examine the work of Charles. Hicguet stated that the Cæsarian operation, without presenting any great difficulties, is one which requires a certain familiarity and operative experience, as well as coolness,—qualities not always met with in physicians who know how to handle a bistoury. Even when practiced with the greatest precautions by able surgeons, the mortality is large enough. The operation should therefore not be undertaken by inexperienced practitioners. The

speaker recalled that the mortality of the cases reported by Zweifel and Leopold was 6.4 per cent. ; Morisani in 1892, 20 per cent. for the mother and 18 per cent. for the child ; Schauta in twenty-four cases lost one mother ; the statistics given by Caruso of operations practiced by Credé, Leopold, Säger, Zweifel, etc., in all thirty-five cases, show that none of the children were lost.

Porro's Operation.—Smith ²⁷_{Jan.} reports a successful case of this operation, in which the pelvis of the woman measured 7.25 centimetres in its true conjugate. Th. Morse ²_{Feb.} performed Porro's operation on a woman with a tumor adherent to the pelvis. The child was extracted dead, but the mother lived. Lubac ¹⁰⁰_{June 22} reports a case of Cæsarian ovaro-hysterectomy in a rachitic woman, aged 21, with oblique, oval pelvis measuring 4 centimetres in true conjugate. She was 1.25 metres in height. She was delivered alive, but lived only half an hour. It weighed 2800 grammes (6¼ pounds), and had a large aërocele of the neck. The operation lasted three-quarters of an hour, the patient losing only 300 grammes (9½ ounces) of blood and recovering.

Mayo Robson ¹⁰⁷⁷_{Mar. 22} relates the case of a multipara in whom the pelvis was completely filled by a large fibromyoma. Porro's operation was performed, the child living. In the evening there was considerable hæmorrhage from the pedicle and by the vagina, but the patient recovered. J. Carstens ⁶¹_{Sept. 16} describes a case in which, at the first labor, it was very difficult to extract the foetus, even by craniotomy. The patient was warned that in the event of another pregnancy it would be necessary to provoke premature labor. However, the patient did not apply to the physician until two weeks before term, when it was too late. Porro's operation was performed when labor set in, both mother and child being saved. Carstens asks if he had the right to remove the uterus of this patient. He believes that he had, (1) because the operation was more easily performed, (2) because it was less dangerous, and (3) because the woman was no longer exposed to similar operations.

Price and Clegg ¹⁸⁷_{Apr. 6} describe a case in which palpation showed the presence of numerous abdominal tumors, a large one to the right occupying the neck of the uterus, and a still larger one the right broad ligament and iliac fossa. Delivery was impossible by ordinary means, and Porro's operation was performed, the loss of blood no more than in ordinary labor ; however, the patient died several

hours after from shock. The child was living. Symphyseotomy was not indicated in this case, owing to the number and dimensions of the tumors.

Symphyseotomy.—Wehle³¹⁷_{p.22} has found, in ten women examined, that ossification of the symphyses had not taken place at the age of 60 years. In 60 cadavers the articulation was exactly in the middle only 8 times; in 40 cases it was to the left, and in 12 cases to the right. The separation averaged 1.5 centimetres. Oehlschlager³¹⁷_{No.24} reports a case of spontaneous rupture of the symphysis pubis during labor, in a primipara who had had two attacks of eclampsia, and in whom the promontory was accessible. The forceps were applied, and, although but moderate traction was used, a notable separation of the pubes took place. The woman was easily delivered of a child weighing 9 pounds ($4\frac{1}{2}$ kilogrammes), and recovered, although a certain degree of separation remained. Marshner³¹⁷_{p.447} also reports a similar case.

G. Walcher,³¹⁷_{p.494} although not opposed to symphyseotomy, believes that the operation should be limited as much as possible. He has never had occasion to perform it, although he has five hundred and fifty deliveries yearly in his service. Further, it is well to consider the symphysis pubis after operation. Is it weak or ankylosed? Two conditions equally unfavorable for the future; while the lesions of the bladder and ureter observed are not encouraging. Wehle³¹⁷_{p.22} shows that in the operation of symphyseotomy there occurs not only a separation of the extremities of the bones, but also a marked movement of the lower portions. It can in no way be regarded as a substitute for Cæsarian section, but merely limits the domain of the latter in cases of completely contracted pelvis. It may replace perforation, which will thus be limited to a minimum of cases, symphyseotomy being indicated when the foetal head is movable above the superior strait, and where the generally contracted pelvis measures from 6.5 to 7.5 centimetres in its true conjugate and the flat pelvis 7 centimetres.

In a letter to Pinard, Queirel⁴⁸_{p.51} states that he would not hesitate to perform symphyseotomy instead of embryotomy, even if the child were dead, since he regards it as a much simpler operation than embryotomy. With this opinion Pinard does not agree. Murdoch Cameron²_{No.7} disputes the claim²_{p.2} that symphyseotomy will supplant Cæsarian section, believing that each operation has

its indications and limitations. Eustache ²²⁰_{June 10} publishes the following conclusions: 1. Symphyseotomy has a recognized position in obstetrics. 2. It cannot supplant artificially-induced labor for narrow pelvis in cases observed during pregnancy. 3. During labor it is indicated when the pelvis measures from 6 to 8 centimetres. 4. When the pelvis measures more than 8 centimetres, it should not be used except when delivery by forceps or version is impossible. 5. It may be confined with artificially-induced labor in cases where the pelvis measures 6 to 7 centimetres, and with the forceps in most other cases.

Cocq ⁸⁶⁸ adopts Morisani's ideas as to the indications for symphyseotomy, preferring induced labor if the woman is seen before term, or combining the two. Robert Harris ⁹_{Aug 5} gives the statistics of the operation in the United States. Of 25 cases, 4 of the mothers and 6 of the children died. He prefers to follow Morisani's teachings, based upon an experience of twenty-seven years, and believes that France has yet much to learn.

A. Hulot ²¹¹⁹_{July} states that, within proper limits,—5.5 centimetres (Tarnier), 6 centimetres (Pinard),—separation of the pubic bones increases the antero-posterior diameter from 13 to 15 millimetres, and at the same time increases the transverse and oblique diameters (Fochier). The operation is beyond the reach of general practitioners, requiring special surgical experience, instruments, and asepsis. Consolidation of the pelvis does not always take place after the operation. Statistics show the mortality for the mother to be 10.74 per cent., and for the child 24.66 per cent. Forceps should be sufficient when the pelvis measures 11 centimetres,—at least, if the child is not too large and the bones of the head are not too completely ossified. Above this diameter, when the head does not become engaged, version may sometimes be successfully employed (Budin, Bar, Garrigues, Nagel). Above 10 centimetres symphyseotomy should be practiced; but not when the diameter at the subpubic eminence is less than 8 centimetres, when Cæsarian section is indicated. In performing symphyseotomy it is well to profit by Fochier's advice and obtain the bearings of the head and its deviation, and, having brought it into position, to draw together the pubic bones before engaging the head. In certain cases, where the pelvic cavity is partially occupied by a tumor, symphyseotomy may be successfully employed (Lepage, Rein). In cases of pro-

longed labor, with violent and sometimes dangerous contractions of the uterus, if performed in time, symphyseotomy may draw on the head and, in consequence, cause dilatation of the neck (Zweifel²⁰²³_{May}). According to the statistics of antiseptic symphyseotomy from 1887, as given by Morisani, up to the present time, of 149 cases, the mortality for the mothers was 15 and for the children 37; for both, 10; the percentage for mothers being 10.7 per cent. and for children 28.3 per cent. Of 113 cases since February 4, 1892, 14 women (12.3 per cent.) and 32 children (28.3 per cent.). These figures are eloquent enough.

Jewett, of New York, ⁹¹¹_{Nov., '92} practiced symphyseotomy with success in a case of bi-ischiatic contraction of the pelvis in which the forceps had failed. Rein ⁷²⁸_{Aug.} divided the symphysis in a III-para of 27 years, at term, and suffering from three fibrous tumors of the anterior wall of the sacrum, encroaching upon the left half of the pubis. Mother and child were saved. Rein concludes that the operation is indicated when the pelvis is generally contracted, flat, or kyphotic, and when pelvic tumors prevent delivery.

Accidents and Complications of Symphyseotomy.—Schwarz ⁸¹⁷_{No. 6} reports two cases of symphyseotomy. The first was in a woman whose first child was delivered with forceps, dead; the second by version, also dead. In the third labor version was performed, but, owing to the pelvis being generally narrow, it was impossible to extract the head. Detruncation was performed, when hæmorrhage from laceration of the inferior segment of the uterus occurred, followed by eclampsia. Symphyseotomy was then performed and the head easily extracted. A pathological puerperium followed, with elevation of temperature, but recovery took place in about eight weeks. The second case was a woman with rachitic pelvis, shoulder presentation, and tetanic uterus. Version was impossible, and symphyseotomy was performed, the symphysis being ossified. A dead child was delivered. Parametritis and pelvic peritonitis set in, and the patient died on the eighth day. On autopsy, the fatal termination was found to be due to cellulitis from the complicated labor and the operation wounds. Baum ⁸¹⁷_{No. 29} operated in two cases, in the first of which recovery was complete; in the second, however, the articular surfaces failed to unite. J. O. Cobb ¹_{Aug., '90} had a case of vicious pelvis in a primipara, in which three applications of forceps failed. The foetal heart-beats had ceased,

when symphyseotomy was performed, followed by the use of forceps, the child being born dead. The perineum was lacerated; an abscess followed, with elevation of temperature for eight days, when the patient recovered.

Zmigrodski¹²² states that the first symphyseotomy in Russia was performed by Krassowski, on a woman of 23 years, in whom, at the first labor, perforation with the cranioclast had been necessary. Symphyseotomy was followed by hæmorrhage from the corpora cavernosa of the clitoris and rupture of the vagina. The child was delivered alive and weighed 3410 grammes (6½ pounds). The mother recovered. The second symphyseotomy was practiced by Kochkarow upon a kyphotic patient of 22 years, the wound being sutured four days later. The child was alive when delivered, but died the next day. Korzch de Wiatha has, since 1883, been an ardent defender of the operation in Russia.

Beugnies²¹ publishes the case of a woman with generally contracted pelvis, in labor for forty-eight hours, with prolapse of the cord, the child being dead. Though the skull was perforated, delivery could not be effected, and symphyseotomy was performed. There was considerable hæmorrhage. The child was extracted with forceps, and the symphysis sutured. The patient did well for two days, when the temperature rose; there was diarrhoea, symptoms of gangrenous lymphangitis of the wound and of the vagina, and pneumonia, death ensuing fifteen days after the operation.

A. H. N. Lewers⁶ reports a case of symphyseotomy in a woman whose pelvis measured six to six and one-half inches external conjugate, and who had already borne a living child. The second labor was an occipito-posterior vertex presentation. Application of the forceps was without result, and the patient was taken to the hospital, where a second attempt was made, with no avail. Symphyseotomy was performed and delivery easily completed with the forceps. Section of the pubis was very difficult, the author breaking a bistoury. The child was living. The operation was followed by fever, vomiting, and diarrhoea, suppuration of the wound extending to the vagina, complete incontinence of urine, eschars of the sacrum, pus in the urine, and cellulitis about the wound, the formation of a sequestrum necessitating its opening and drainage. At the end of five months the patient recovered. Smyly² reports the case of a woman who had had eight natural

deliveries. The ninth proved difficult, and the forceps were of no avail. The patient was removed to the hospital, where a dead child was delivered. The true conjugate of the pelvis was 7.5 centimetres. In the tenth pregnancy labor was tedious, the meconium escaping. Forceps were useless, and symphyseotomy was resorted to, laceration of the urethra and soft parts occurring. The child was readily delivered, and, though apparently dead, was resuscitated. Hæmorrhage from the laceration was easily arrested, the urethra sutured, and the patient recovered, but incontinence of urine necessitated another operation. E. H. Grandin²⁷ reports two cases,—the first being a primipara with vicious pelvis, the true conjugate of which was three and one-quarter inches. The forceps having failed, symphyseotomy was performed and a living child extracted with forceps, weighing 7 pounds (3.5 kilogrammes). An abscess of the wound occurred on the twentieth day, and a vesico-abdominal fistula later on, with double crural phlebitis. The patient recovered. The second case was a woman of 23 years, with infantile pelvis, three inches in its true conjugate. Three unsuccessful attempts had been made to induce premature labor. Spontaneous labor came on, symphyseotomy was practiced, and a child weighing 5 pounds (2.5 kilogrammes) delivered by version. The puerperium was normal. W. T. Lusk⁵ opened the symphysis of a primipara at term, after several fruitless attempts had been made at delivery, by version and forceps, before her entrance into the hospital. Laceration of the anterior portion of the vagina and cervix had been caused by these efforts. The child was delivered alive, but died shortly afterward from wounds caused by the forceps. It weighed 9 pounds (4½ kilogrammes). The mother fell into coma and died on the evening of the day of operation.

Kein¹⁵⁴ performed the operation upon a woman, aged 27 years, whose pelvis was filled by tumors. The forceps were left in place, and a living child was delivered, the separation being seven centimetres at the passage of the head. The patient suffered from fever for ten days, but recovered. Kein considers symphyseotomy as indicated in kyphotic pelves,—those uniformly narrow or flat, and in those obstructed by tumors. Springle²⁸² performed the operation on a patient whose pelvis measured seventy-five millimetres, true conjugate. A living child, weighing 3620

grammes ($7\frac{1}{4}$ pounds), was delivered. The mother suffered afterward only from violent pain of the left sacro-iliac symphysis.

Garrigues^{Mar. 5} operated on a woman with a pelvis generally contracted, of the masculine type, in labor for thirty-eight hours. There was considerable hæmorrhage during the operation. The child was extracted alive by version. Chills and fever occurred during the puerperium. The wound was normal, but there were symptoms of metritis and nephritis. Recovery ensued. Prouvost^{July 14}⁴⁸ opened the symphysis of a woman in labor for twenty-four hours. The pelvis measured nine centimetres, and dilatation was complete, but two applications of forceps had been ineffectual. Hæmorrhage from rupture of the plexus of Santorini occurred during symphyseotomy. The child was apparently dead, but was revived, and the mother recovered. Davis^{May 18}⁵⁹ reports the case of a IV-para whose first labor had been terminated with forceps, the child living. The two labors following were natural, with living children. At the fourth labor the true conjugate measured 8.5 centimetres, the symphysis pubis being abnormally high. Symphyseotomy was practiced, and a living child removed with forceps. The mother died on the twenty-second day, from intestinal symptoms and pneumonia. Baum^{Apr. 8}³¹⁷ reports a case of symphyseotomy with extraction of foetus by forceps. After the birth of the child the anterior vaginal wall hung like a purse outside the vulva, and there was considerable hæmorrhage of the vagina and the wound. The clitoris and urethra were completely detached from the pubic arch. During the puerperium there was suppuration of a portion of the wound, œdema of the vulva and labia, high temperature, incontinence of urine, and painful mobility of the symphysis on the forty-fourth day.

Antony^{Sept. 30}⁵²⁸ observed a rachitic woman whose first labor had been very painful; the child, which was extracted with forceps, having its head crushed, and the mother remaining in bed three months. The second labor occurred spontaneously, before term, the child being dead. In the third pregnancy, at term, there was rigidity of the cervix and contraction of the pelvis, the dilatation being about two centimetres. Symphyseotomy and the expectant plan for twelve hours, when dilatation was complete, enabled the child to be born alive, with the aid of forceps. The separation during the passage of the head was between six and

seven centimetres: During the puerperium the temperature varied from 38° to 39° C. (100.4° to 102.2° F.), there was violent pain in the sacral region, the varicose veins of the lower limbs became inflamed, eschars appeared on the posterior portions of the body, and the edges of the wound failed to unite. Later there was cystitis with tenesmus and incontinence of urine. Recovery ultimately ensued.

Eckstein⁸¹⁷_{Nov. 10} performed symphyseotomy on a primipara of 40 years, in labor for three days, the true conjugate measuring 8.5 centimetres. There was considerable hæmorrhage, a living child being extracted with the forceps. The separation was four centimetres during the passage of the head. The mother died on the third day. She had a flat, rachitic pelvis, generally contracted. There were two small, symmetrical, contused wounds on the nape of the child's neck, on each side of the dorsal spine, about four centimetres apart, corresponding to the amount of separation of the two symphyses.

A. Broomall²⁷_{Sept.} reports three cases of symphyseotomy, with one death from septicæmia. The first case was that of a negress, with generally narrow, rachitic pelvis, 8.5 centimetres true conjugate, who had already had six living children. In the seventh pregnancy the head of the child was considerably ossified. Symphyseotomy was followed by the delivery of a child weighing 4000 grammes (8 pounds). The second case was that of a woman whose pelvis measured 8.2 centimetres true conjugate, and whose previous labor terminated spontaneously in four hours. After symphyseotomy an asphyxiated infant, weighing 3740 grammes ($7\frac{1}{2}$ pounds), was removed. Suppuration of the wound for two weeks was followed by phlebitis of the left side, and later arthritis of the right knee. Recovery took place in eight weeks. The third case was a multipara in whom seven previous labors had been terminated with instruments, the children all being born alive, but dying soon after. At the eighth labor, the child being dead, craniotomy was practiced. In the ninth pregnancy premature labor was induced at eight months, the child, weighing 3250 grammes ($6\frac{1}{2}$ pounds), being extracted alive with forceps. In the tenth pregnancy the woman entered the hospital, two weeks before term, in labor. The pelvis was generally contracted, the true conjugate measuring eighty-five millimetres. Tarnier forceps were

used, and with difficulty a child was extracted which could not be resuscitated. In the eleventh pregnancy abortion occurred. In the twelfth the patient entered the hospital in the eighth month, and, with her consent, symphyseotomy was decided upon. The forceps were useless. There was considerable difficulty in opening the symphysis, an asphyxiated infant being delivered with forceps and brought to life. During the puerperium vomiting and diarrhoea occurred, on the fourth day suppuration of the wound, and on the twelfth day death from septicæmia.

Lebedeff⁵⁸⁶ reports the case of a woman whose former pregnancies had terminated badly, the minimum diameter of the pelvis being eight centimetres. Symphyseotomy was performed, a spontaneous separation of 1.5 centimetres taking place. A living child, weighing 4400 grammes (9 pounds) was delivered with forceps. Considerable hæmorrhage from the posterior surface of the symphysis was arrested with tampons. Lebedeff is not as enthusiastic as some authors over this operation, fearing the possible complications, as hæmorrhage, vesico- and urethro-vaginal fistulæ, etc. He regards it as valuable in cases where there is a general narrowing of the pelvis. A. Kashkaroff⁸¹⁷ performed symphyseotomy on a primipara in labor for two days, with membranes ruptured the evening before. The child died in twenty-four hours, but the mother recovered. In a second case, an eclamptic primipara, with a temperature of 39.5° C. (103° F.), symphyseotomy was followed by the birth of a child, which made a few convulsive movements and died. The mother also died from puerperal complications.

L. von Dittel⁸¹⁷ reports three cases from the service of Chrobak. The first patient was 26 years old, the pelvis measuring ten centimetres. The child died the day after birth, there being an occipital fracture. During the operation hæmorrhage occurred, the separation of the symphyses reaching seven centimetres. The soft parts were lacerated as far as the clitoris. Death occurred. The second case was a II-para, whose first child had been born dead. The true conjugate was eleven centimetres. In the second labor symphyseotomy was followed by total separation of the urethra from the clitoris. The patient was still in bed in the sixth week, with suppuration of the wound and necrosis of portions of the cartilage.

R. Braun³¹⁷_{p.616} observed a multipara whose first child had died five days after birth. The second labor was a breech presentation, the head being retained and the child being born dead. The third was a shoulder presentation. There was tetanus of the uterus, the bag of waters having broken forty-eight hours previously. The heart-beats were good. The pelvis measured 8.25 centimetres. The patient was anæsthetized, version and symphyseotomy performed, and a living child extracted weighing 3800 grammes (8½ pounds). During delivery a crackling sound was heard, probably due to a lesion of the sacro-iliac articulation. Sutures of silver wire were used. Recovery ensued. Braun states that caution should be observed in performing the operation if endometritis and fever are present. He does not think silver sutures absolutely necessary, as Koffer obtained good results at the clinic without them. He had occasion to perform an autopsy on a woman who died of cancer of the stomach, and who had previously submitted to symphyseotomy. The symphysis showed a separation of six millimetres, although the sutures were still present. On cutting these the separation increased, though the silver suture was still intact. Wertheim³¹⁷_{p.616} reports the case of a multipara in whom the true conjugate was eight centimetres, the transverse diameters being also diminished. Symphyseotomy caused a separation of six centimetres. Silver sutures were used. Fever appeared on the sixth day, and the patient died on the eleventh from septicæmia, endometritis, and purulent phlebitis. In spite of the separation, there were no lesions of the sacro-iliac symphysis. In the discussion, Braun stated that in private practice the use of silver-wire sutures sometimes caused complications. Chalmers Cameron,⁴⁸_{Oct.} in a letter to Varnier, reports three cases of symphyseotomy. The pelvis in one case measured seventy-five millimetres, a living child, weighing 3629 grammes (7½ pounds), being delivered with the forceps. Laceration of the perineum occurred during the operation, and later one of the sutures gave rise to some trouble through slight local infection. The wound did not unite well nor quickly, a fistula persisting for some time. A splinter of bone was eliminated, and the patient finally recovered. The pelvis in the other cases measured sixty-five and seventy-six centimetres, and both operations were successful. Bennett⁴⁸_{Mar.} opened the symphysis of a V-para of 35 years, whose three previous labors were terminated with

forceps, the children living. At the fourth labor version was practiced, the child being born dead. The fifth labor was at term, the pelvis measuring between 8.5 and 9 centimetres. Dilatation being complete, symphyseotomy was performed, and a child, weighing 4000 grammes (8 pounds), was extracted with forceps. With the exception of slight incontinence of urine, the puerperium was normal.

G. Braun, of Vienna,³¹⁷ operated in a case in which the true conjugate of the pelvis was 8.5 centimetres. The corpus cavernosa of the clitoris bled freely, and the child, which was asphyxiated, died on the second day from atelectasis of the lungs. Serious collapse occurred in the mother from loss of blood, but she recovered. R. Braun, at the same meeting, reported two new cases, the first in a primipara with flat pelvis measuring 10.7 centimetres. The child was resuscitated. In the third case the temperature rose to 38° C. (100.4° F.), and there was incontinence of urine. The woman recovered. The second case was a patient whose pelvis, at autopsy, measured eight centimetres. Abundant hæmorrhage occurred during the operation, and the child was revived with difficulty. The mother died on the sixth day. There was a large area in the lung, a perforating ulcer of the stomach, and peritonitis. The abdominal wall was infiltrated with pus, but not in the neighborhood of the sutures. The symphysis was open for a distance of six or seven centimetres, in spite of silver sutures. The cartilages were covered with pus. In the course of the discussion the speaker stated that at the autopsy of a woman with a pelvis measuring 6.75 centimetres, who had been delivered of a large child and who died six weeks later, no lesion of the sacro-iliac articulations was found, and the true conjugate measured six centimetres. Schauta stated that he did not apply the forceps unless the head was fixed and had partly entered the pelvis. If the head was movable, he performed version. He never performs symphyseotomy if the pelvis measures less than seven centimetres. The size of the child, however, must be taken into account, and, if it is small, symphyseotomy may be practiced when the pelvis measures six centimetres. Regnier performed the operation on a III-para with a pelvis measuring 9.75 centimetres. Recovery followed. He twisted the silver sutures around a steel stem to keep the bones together.

Guéniot¹⁹⁴ presents an apparatus for holding the symphysis

in position after operation, giving it the name of an iliac compressor. It consists of two metallic plates, one to be applied to the right, the other to the left side of the pelvis, measuring fifteen centimetres in length by twelve centimetres in width, fenestrated to insure lightness, and slightly curved inward, so as to be adapted to the hips. A belt in the backs permits of their proper adjustment; two springs, united in front by a strap, producing the desired amount of pressure upon the iliac bones, and maintaining the latter in an immovable position. Budin uses a simple rubber belt, large enough, and elastic as regards length.

Pinard ⁴⁸_{June} reports his twentieth symphyseotomy at the Baude-locque clinic, the child living and the patient dying on the ninth day. She had been previously delivered three times at term and normally of living children. The subpubic eminence measured 10.4 centimetres.

E. Clifton ²¹²⁰_{May 27} saved mother and child in an operation upon a woman whose pelvis measured three and a half inches. Latzko ²⁸³_{v. 38, p. 169} delivered a living child, weighing 4580 grammes ($9\frac{1}{8}$ pounds), which lived three days. The woman had been in labor two days, pelvis 8.5. Michael ²⁷_{Feb.} opened the pubis of a negress with vicious pelvis (two inches and three-quarters). The child died on the third day from meningeal hæmorrhage, attributed to the tedious labor. Regnier ³¹⁷_{No. 3} reports a case by Chrobak, of successful symphyseotomy in a woman upon whom Breisky performed Cæsarian section four years previously. The true conjugate was 7.5. Noble reports the case of a V-para of 30 years, with true conjugate of seven centimetres. The first labor was forceps, the child dying from injury. The second labor terminated naturally, but the child weighed only 5 pounds ($2\frac{1}{2}$ kilogrammes). In the third pregnancy Cæsarian section was performed at term by Howard Kelly, the child living. The fourth labor was induced, and delivery difficult. In the fifth pregnancy, Noble, who was consulted in time, preferred to do symphyseotomy at term, the child weighing 8 pounds (4 kilogrammes). The head engaged as in a flat pelvis. The puerperium was normal.

Carbonelli reports a case of symphyseotomy, followed by basiotripsy, in a woman suffering from osteomalacia of the pelvis and suppuration of the leg. The foetus was dead. The home of the patient was in the mountains, and Carbonelli had nothing with

which to perform Cæsarian section; he therefore opened the symphysis and performed basiotripsy, saving the life of the patient. Dimmock²_{June 24} describes a case of extremely contracted pelvis in which he opened the pubis, and, as it was impossible to perform version, craniotomy upon the living child was done, the mother recovering.

The subject of symphyseotomy was discussed at length at the French Obstetrical Society. Lepage, of Paris,⁷³_{Apr. 15} reported a case in which the pelvic cavity was occupied by a large, hard tumor. Symphyseotomy was followed by the extraction of a living child weighing 2897 grammes (5 $\frac{3}{4}$ pounds). The puerperium was normal. From this case he drew the following conclusions: 1. Symphyseotomy is an operation of emergency, practicable outside of hospitals. 2. It is not only indicated in cases of vicious pelvis or in which the child is too large, but also in tumors obstructing the pelvis. 3. In the case just reported, premature labor at eight and a half months would have been insufficient. 4. Symphyseotomy is indicated in cases of non-reducible intra-pelvic tumors. The diagnosis should be carefully made by digital examination. Queirel reported the case of a woman in whom the operation was performed on account of narrow pelvis, the mother and child being saved, and alluded to the ease with which union of the bones takes place. Guéniot gave the statistics of symphyseotomy in his service. In two of the cases the mother and child recovered, but in the third the child died from the results of the tedious labor. Maygrier performed the operation for a tumor of the left ischio-pubic arch, implicating the cavity of the pelvis. The woman had been in labor since the evening before, and had received no anti-septic care. The membranes were ruptured and the amniotic fluid was tinged with meconium. Symphyseotomy was easy, but, in spite of a separation of six centimetres and several applications of forceps, basiotripsy became necessary. There was a laceration of the vagina five centimetres in length, corresponding exactly to the posterior edge of the right pubic bone, against which the vagina had been pressed while the forceps were used. On the twelfth day phlegmasia of the left limb occurred, which seemed to disappear, but on the twenty-first day an acute attack of dyspnœa caused the death of the patient in about ten minutes, from pulmonary embolism consecutive to the phlebitis of the leg. Budin reported

a case in which the subpubic diameter measures nine centimetres, the pelvis being generally contracted. The mother had a great fear of death, and preferred that the child's life be sacrificed to her own. The forceps were applied occipito-posteriorly to the head without success. Symphyseotomy was then performed, and with the forceps, which had been left in place, a child weighing 3 kilogrammes (6 pounds) was delivered and resuscitated, but died on the tenth day of meningeal hæmorrhage. The mother had three attacks of galactophoritis, but left the hospital cured. The case is interesting as showing the perplexity of the obstetrician under such circumstances. The life of the child was not saved, although the mother was subjected to greater risks than by basiotripsy. In a similar case Budin stated that he would not again follow such a course, but would bear in mind the statement of Morisani, that "the foetus being dead or its vitality compromised, symphyseotomy is a bad operation." The possible good results of premature delivery, forceps, version, and even uterine contractions alone (which sometimes give us agreeable surprises), should be borne in mind.

Tellier ⁷⁸_{Apr. 18} practiced the operation in a primipara of 27, whose pelvis was canalicular and measured 10.75 centimetres. The separation was 10 centimetres during the operation, the child, born alive, weighing 3450 grammes (7 pounds). The perineum was lacerated anteriorly, the tear extending to the front of the vulva and the bladder. Considerable hæmorrhage occurred, and could not be arrested until three-quarters of an hour had elapsed. In spite of the injection of 800 grammes (1½ pints) of artificial serum, the patient died shortly after operation. Varnier discussed the application of forceps, especially in its relation to symphyseotomy. In his opinion, symphyseotomy should take the lead of all obstetrical operations calculated to overcome difficulties in which it may be employed. The operation involves the substitution of forceps for version in pelvic malformations, failure in its use leaving ample time for the performance of the symphyseotomy. The forceps is a murderous instrument in itself, however, in the narrowed superior strait. He concludes: 1. That it is impossible to prejudge whether the application of the forceps before symphyseotomy—successful or unsuccessful—is not going to compromise the life of the child; the intensity or duration of the traction, the degree of pelvic narrowing, the volume of foetus

furnishing no solid basis to support an opinion. In other words, it is never possible to decide beforehand exactly what the result of the use of the forceps will be. 2. Theory or, rather, experimentation has taught him that in a narrow pelvis, not preliminarily opened, powerful traction, the element rendering the forceps so dangerous an instrument, can alone be practiced. 3. He will no longer apply forceps in the superior strait, even in moderately-narrowed pelves, except after symphyseotomy.

As to version, Varnier does not think that it should be considered. In order to insure good results from symphyseotomy, the operation should be complete,—that is, the subpubic ligament should be divided; before final intervention the amount of dilatation of the pubes should be sufficient, estimated from the minimum size of the pubic eminence and a biparietal diameter of ninety-five millimetres in the foetus. Fochier stated that all geometrical calculations as to the situation of the head after symphyseotomy are inaccurate, since they do not take into consideration the irregularities nor the malleability of the foetal head. He also called attention to the danger of the operation, earnestly pleading that the conscious life of a mother should be the first thought, and that, if considered necessary, the unconscious life of the child should be sacrificed to it.

Pinard, since February 4, 1892, practiced 19 operations,—4 on primiparæ and the rest on multiparæ. In 5 cases symphyseotomy was the complement of premature induced labor, 7 times it was consecutive to fruitless attempts with forceps, and in 12 cases it was practiced at the beginning of labor. Eighteen children were delivered by forceps and version. All the women recovered. Three of the children died some days after birth. Since the date mentioned he had had 31 cases of narrow pelvis. In 10 he followed classic indications, applying the forceps to the superior strait, 4 of the children being delivered dead. In 21 cases he followed the new indications, with 16 living children. In one case of oval oblique pelvis he performed ischio-pubiotomy, obtaining a living child. In a case of double sacro-iliac dislocation with a bi-ischiatic diameter of five centimetres, he practiced utero-ovarian amputation, the child living. To sum up, 21 of these women were living, with 18 children; whereas, in previous pregnancies in 16 cases, 30 pregnancies had ended in the birth of 2 children, now living. Two

things are to be avoided, viz., preliminary infection of the mother and preliminary injury of the child.

During the discussion Bar inquired of Pinard and Varnier: (1) whether they argued that version should never be resorted to in a woman in labor in whom intervention is necessary on account of narrow pelvis; (2) whether they absolutely rejected premature labor in a pregnant woman with a narrow pelvis, seen at opportune time for the induction of premature labor; (3) whether they thought it advisable to await labor at term to perform symphyseotomy. To Varnier's affirmative answer Pinard added that it should be well understood that when the pelvis measures less than seven centimetres he combines premature induced labor with symphyseotomy, but never has recourse to version except in shoulder presentations, employing the forceps always.

Bar expressed surprise at the number of symphyseotomies performed in Pinard's clinic. In his own clinic, where there are more than 2000 labors yearly, he had not been able to perform a single one; each time he had thought it might be necessary to perform the operation the delivery was spontaneous, or could be terminated by version or forceps,—procedures to which he is partial. These operations should not be rejected on account of the mediocrity of the results obtained by some. He has had great success with them in properly-selected cases.

Pinard probably rejects premature labor through the fear of having weak children, who would be extremely hard to raise. Professor Tarnier, however, has reported statistics (see "Premature Labor," page I-24) which are no lower than those concerning symphyseotomy; the mortality of the infants was 18 per 100. The personal statistics of Bar are about the same. By waiting until the full term, are we assured of having a living child? No, since Pinard has himself met with failures. The fear of having infants too weak to be brought up, when the labor has been prematurely induced, is probably much exaggerated, since a foetus of 2500 or even 2900 grammes (5 or 5½ pounds), or more,—that is to say, one perfectly capable of being brought up,—can pass through a pelvis measuring seven centimetres. As regards premature labor, Bar much prefers to raise with difficulty a prematurely-born infant than to submit the mother to the dangers of symphyseotomy. With the latter operation it may be possible to have a more vigorous child,

but there is no certitude that the child will be born alive. To quote his words:—

“Premature labor, induced in the conditions indicated, is without danger for the mother; the infants will certainly be more feeble, but with careful attention will develop perfectly. By waiting to perform symphyseotomy, it is true, we should have a more vigorous child, but, while there would be no certainty of having a living child, the mother would be exposed to great risks. We should not follow you on this path, and will therefore continue to resort to premature labor, preferring the care and annoyances to which we would be subjected in attending to a child prematurely born to the anxiety consequent upon exposing a woman to the dangers accompanying symphyseotomy, when it might have been possible for us to spare her these risks.”

Pinard recalled that among the 19 women upon whom he practiced symphyseotomy there had occurred 30 previous pregnancies treated by various methods, and that only 2 of the children had been raised. Among his 19 cases, on the contrary, symphyseotomy followed by the use of the forceps had enabled him to extract 16 living children. He considers it extremely difficult to estimate the weight of a foetus in the uterus, having sometimes extracted gelatinous foetuses when he had been led to expect to find them perfectly viable. He had abandoned premature labor not because it yielded poor results, but because the child had so little vitality that it generally succumbed, and because intervention was often undertaken too late.

Budin considered that Varnier had furnished statistics which were not recent, while neglecting to mention others equally important. The important statistics of Tarnier concerning the results of premature labor were but slightly alluded to, while the statistics reported by Budin were completely overlooked, so that he finds himself obliged to repeat them. (See page I-21.)

Instead of ignoring these statistics, it would be well to inquire into the reasons for these differences among the operators. Budin explained why the application of the forceps to the superior strait (antero-posterior), as practiced by Pinard, is defective and dangerous for the child, while the oblique application, in the manner of a true catheterization, has always given him good results. Version in contracted pelves has sometimes given surprising re-

sults, but in order to obtain success the shape of the pelvis should be well considered; it would not succeed in generally contracted pelves, while symphyseotomy would here give excellent results. Version, on the other hand, would be of value in flat pelves, the most common form. Budin calls attention to the manner in which the head passes through the contracted superior strait in such pelves, and to the way in which the natural mechanism of labor can be imitated in these abnormal pelves. Within the eighteen months previous to the discussion before this society, Budin had five times delivered a living child by version when the forceps had completely failed, and he had had altogether thirteen cases of this kind. In his opinion, the obstetrician should not confine himself to any one operation, but should suit the operation to the needs of the case. Tarnier's figures for premature labor, as well as his own statistics for the latter operation, prove this. During a certain period, Pinard frequently resorted to premature labor. Now, it appears, he has abandoned this method. Later, he warmly advocated the antero-posterior application of the forceps to the head, which he bent and pushed back above the superior strait. To-day, he rejects all methods save symphyseotomy. It is necessary not only to be able to measure the minimum promonto-pubian diameter, but also to recognize the various shapes of the superior strait, as well as the many varieties of rachitic pelves. To be able to decide whether to apply the forceps, practice version, induce premature labor, or to incise the symphysis is evidently much more difficult than to always resort to one and the same operation, namely, symphyseotomy. Given the dangers of the latter intervention, many practitioners would still prefer to resort to the forceps, version, or to premature labor. The patients would also, it is most probable, choose the operations subjecting them to the least risk. Pinard has requested that the results obtained by each one with one single method should be stated or given here, for the purpose of comparison with those by himself while resorting solely to symphyseotomy. Budin has anticipated his request in bringing his statistics; he asks nothing better than to do so again in the future, and he will not confine himself to any one single method, but will make use of all; according as the case may be, he will resort to premature labor, forceps, version, and even to symphyseotomy whenever the latter would seem to be indicated.

Pinard considers that Budin has had a series of successful results, and that his statistics denote great dexterity. He is, however, surprised that Budin, who has since a long time been at the head of a maternity hospital, should report statistics relating only to the last two years,—that is to say, since the establishment of his new service. Statistics comprising ten years would have been more convincing. He is, moreover, surprised to learn of Budin's success with version, which the latter has never yet announced. Budin replied that a prolonged illness had limited his observations to those given, but that, had it been otherwise, statistics referring to ten years would not prove anything. Some years ago he had published a volume giving a clinical lesson in which he described, with figures inserted, the passage of the head (last) through the contracted superior strait, giving also a number of convincing cases. With regard to the operations at "La Charité," they were all made in the presence of the students, who were able to observe the mothers and infants up to the time of their leaving the hospital; he can, with all sincerity, guarantee the exactness of the statistics he has reported. Pinard insisted that the statistics relating to the last ten years be produced.

A similar discussion took place at the Fifth German Congress of Gynæcology.²¹⁴² Zweifel reported 10 symphyseotomies from September 27, 1892, to March 23, 1893, all terminating happily for the mother, only 4 having slight fever. Of the children, 9 were born alive. After opening the symphysis, Zweifel does not intervene further unless absolutely necessary, when he uses the forceps. He sutures the pubis with silver wire. In 1 case ossification of the symphysis rendered the use of the saw necessary. Hæmorrhage was sometimes annoying, and could not be controlled by ligature, the only manner of arresting it being with iodoform-gauze tampons. In 2 cases there was, besides laceration of the corpora cavernosa, a vaginal rupture communicating with the external wound, and the urethra was severed entirely from the vaginal wall. In 3 cases there was incontinence of urine for two weeks. He regards the operation as contra-indicated in oval oblique, Naegelé, or Robert pelves, or in those in which there is double sacro-iliac ankylosis. He formulates the following conclusions: 1. The operation is indicated in all cases in which recourse was previously had to perforation of the living child. It will replace

Cæsarian section in cases where the true conjugate is more than sixty-five millimetres, provided that the sacro-iliac is movable and the foetus of medium size. 2. Below sixty-five millimetres, when the child is living, Cæsarian section maintains its right; if the child is dead, the labor should be terminated by the natural passage as far as forty-five millimetres, with the aid of Busch's cephalotribe or the Simpson-Tarnier basiotribe. 3. The forceps should always be applied to the elevated head in moderate degrees of contraction, because, if it fail and the child be still living, symphyseotomy may permit of its extraction. The application of forceps, however, should not be prolonged, nor commenced without the idea of having recourse, as soon as necessary, to symphyseotomy. 4. Prophylactic version should be reserved for contractions of the first degree, eighty-five to ninety-five millimetres true conjugate. 5. It would be a mistake to perform symphyseotomy instead of Cæsarian section in every case. 6. The operation is a simple one, easily performed with a strong bistoury, the finger being introduced behind the symphysis; in case of ossification the chain-saw renders the operation very easy. Hæmorrhage from the clitoris may be treated exclusively with tampons of iodoform gauze. After the operation, spontaneous labor, or at least spontaneous engagement, should be awaited. 7. To obtain perfect primary union osseous suture with dry sterilized catgut is recommended. Before tying the suture, the bladder should be compressed and the gauze tampon brought out on the surface of one of the angles of the wound rather than inside. A simple bandage or belt should be worn, and the gauze removed at the end of twelve hours. If the operation has been aseptic, all other treatment is superfluous, catheterism being rarely necessary during the first two days. The operator believes that if infection can be avoided symphyseotomy is always followed by happy results.

The discussion following Zweifel's paper was animated. Leopold, of Dresden, thought that the operation should not become general in use, and that it should be limited to cases in which the pelvis measured at least eight centimetres true conjugate, the minimum being six centimetres. Above eight, spontaneous labor may come on, and version has also given excellent results. The accidents of the operation are not slight, and it should but rarely be performed on a primipara. Leopold considered that it was only

three years after the operation that its results could be estimated. If it be performed, the cervix should first be completely dilated. He had seen severe hæmorrhage of the vagina following a hæmorrhage that would have been very troublesome to a physician outside of a clinic. Symphyseotomy would never become a universal operation. The minimum limit of contraction of the pelvis is six centimetres. In pelves whose antero-posterior diameter is more than eight centimetres, one should wait or use a bag to hasten the confinement.

In uniformly-contracted pelves, up to seven and one-half centimetres, version should be resorted to; in flat pelves it can be used up to seven centimetres. When symphyseotomy is indicated, it will be necessary to wait until the neck be fully dilated. Great prudence should be observed in the case of primiparæ. Chrobak, of Vienna, was of the same opinion, and felt that the operation should for the present be limited to the clinics, and that those who taught the method to young obstetricians should realize their responsibility. Frommel, of Erlangen, agreed that it was better that the operation should not become general, as, like the other speakers, he had observed serious accidents. Fehling also thought that its field should be restricted, although, unlike Chrobak, he did not prefer Cæsarian section. Symphyseotomy might be combined with premature delivery in cases of small pelves. He was surprised that Pinard should have had thirty-five dead children in one hundred and fourteen applications of forceps. Schauta, Olshausen, and Sänger preferred the Cæsarian operation. Koffer, Baum, and von Swiecicki called attention to the accidents attending symphyseotomy. Neugebauer had collected the statistics of four hundred operations since 1877. He is not convinced that the method is a harmless one. Winckel believed that its limitations should be narrow and that it should be employed conservatively.

UMBILICAL CORD.

Nguyen-Khac Can, ²³⁶_{No. 2} from a study of the statistics of the subject, believes that but a single ligature of the cord is necessary, as it requires a much shorter time for delivery, and retention of the placenta is met with much less frequently than when the double ligature is used. The latter should be employed only in cases of multiple pregnancy.

Hankel³¹⁷ relates the case of a V-para who was delivered in bed after half an hour of labor, without midwife or relative near. The after-birth came away spontaneously, and the woman pushed it violently off the bed, not wishing to soil the latter. Rupture of the cord resulted. Half an hour later the husband arrived, and immediately sought a nurse. The child was between the mother's limbs, and there was a slight bloody discharge. The placenta was in front of the bed. From the umbilical opening, large enough to permit the entrance of the end of the little finger, about twenty centimetres of the intestine protruded, cut as neatly as if by a scissors. The placenta was normal, the cord, inserted in the centre, measuring thirty centimetres. There had been little discharge from the umbilicus, for the child was not anæmic. The intestine was not reduced, as it was supposed to be covered with septic matter, and no artificial anus was made. The child died on the fifth day, autopsy being refused. No scissors or knife was found near the mother, but in the discussion Zweifel and Säger both expressed the belief that the woman had cut the intestine, thinking it the umbilical cord.

Knots in the Cord.—Lefour,²¹²¹ in a memoir upon this subject, arrives at the following conclusions: As regards the umbilical vein, a loose knot exercises no influence, but a tight knot affects it in a notable degree. A tight knot with a compression of 150 grammes (4½ ounces) occludes the vein almost entirely. As regards the umbilical arteries, a tight knot affects them but very slightly; a tight knot with a compression of 100 grammes (3½ ounces) is barely noticeable, while compression of 150 grammes (4½ ounces) causes marked slowing. Lugeol²³⁶_{Sept.} presented a case in which the knot was of the figure-of-8 variety. The foetus (seven months) was dead and macerated. Lugeol did not attribute death to the knot, as the vessels were permeable, but to the diseased condition of the mother, who suffered from cancer of the stomach with hæmatemesis. The motions of the child had ceased after a violent hæmorrhage. Macaulay²_{Nov. 22, 92} reports a case of death of the foetus *in utero* from a knot of the funis. The mother was a primipara of 30 years, at term, and from the symptoms the child had been dead for a month. It was expelled in a macerated condition.

Prolapse and Compression.—Tildesley⁶_{Sept. 9} describes a case of presentation of the funis in a X-para. Dilatation was complete

and the membranes intact. The patient was placed in Sims's semi-prone position on the opposite side to that of the procidence of the cord, the latter being replaced. Forceps were applied to the head and a child rapidly delivered; although asphyxiated, it was resuscitated. Scroggie,²_{Feb. 18} in cases of prolapse of the cord, recommends that a sponge, the size of an orange, be dipped in hot water, and, in the interval of contraction, cord and sponge be pushed back between the uterus and foetal head. The cord will not again descend, and the sponge will be expelled with the placenta.

J. M. Duff¹⁰⁰⁸_{Sept., '92} reports a case of shoulder presentation neglected by a midwife. There was prolapse of the cord, and the heart had ceased beating. Version was performed, and the author perceived that the heart still beat feebly. Artificial respiration was immediately practiced, and the child was plunged alternately into hot and cold baths, with the effect of reviving it. A similar result was obtained in three cases of the same kind. He concludes that, even when there is no longer pulsation of the cord and the heart-beats cannot be heard, it is better to interfere. He has seen children thus delivered recalled to life fifty minutes after pulsation in the cord had ceased (!).

C. Roncaglia⁶¹⁵_{June} records a case of compression by the cord, which was rolled around the neck, in a case of posterior parietal inclination of the head. The compression was of short duration, but the child was born asphyxiated, and was with difficulty revived.

Shortness of the Cord.—Audebert⁷⁰_{May} observed a case of dystocia due to this cause. A woman about seven and a half months pregnant entered in labor, the pelvis being normal. Dilatation was complete, but the head did not descend. The membranes were ruptured, when the head came down, but did not rest upon the floor of the pelvis. Tarnier's and Loviot's methods of producing artificial rotation of the head were ineffectual, and hæmorrhage occurred. The forceps were used, when the hæmorrhage redoubled, a cyanosed infant being delivered weighing 2010 grammes (4 pounds), which was resuscitated. The placenta followed immediately. The length of the cord was thirty centimetres. It is supposed that partial and then complete detachment of the placenta occurred at the moment the forceps were applied. Leray²¹²³ makes shortness of the umbilical cord the subject of a thesis.

PLACENTA.

J. P. Marsh¹_{Sept., '92} reports four cases of external hæmorrhage from detachment of the placenta, normally inserted. All the children were born dead, the mothers being saved by rapid intervention. Lehmann⁹⁹_{Nov., '92} observed a case of tuberculosis of the placenta. The antecedents of the woman were tuberculous, and the child died a few days after birth, the labor being normal, and the mother also soon succumbed. At the autopsy the characteristic lesions of acute tuberculosis were found in the foetus, and disseminated miliary tuberculosis in the mother. The placenta was manifestly tuberculous, and the cells of the decidua were infiltrated with tubercles, which were also found in the small vessels of the chorion.

Matheson Cullen⁸⁶_{July} reports a case of double adherent placenta. A multipara of 35 years was delivered of twins. She had already had six children, and each time the placenta was adherent, causing hæmorrhage. This occurring in the present labor, with hour-glass contraction of the uterus, artificial delivery was successfully resorted to.

Feinberg⁸¹⁷_{Nov.} calls attention to the rare occurrence of prolapse of the placenta when normally implanted, and reports the case of a woman, aged 34, who had already had four children. Menstruation had occurred for the last time on April 1, 1891. The first pains were observed on January 11, 1892. The midwife found everything normal, and heard the foetal heart-beats. However, she sent for a physician, as the placenta had been expelled. The foetus was born dead. The after-birth was normal, the opening of the membranes being in the centre.

According to Curatulo,⁹⁴⁸_{Jan.} the expulsion of the placenta is modified by its point of insertion, its form, the traction on the cord, the length of the latter, and the degree of adherence. The mechanism is always the same, and it is only necessary to consider whether the placenta is situated in the body of the uterus or in its lower segment. In the service of Pasquali, Curatulo introduces the hand into the uterus, and, if implanted upon the fundus, the placenta is detached by Schultze's method; if upon the walls of the uterus, by Duncan's method. The central portion is first to free itself, a hæmorrhage facilitating its expulsion. As regards detachment of the membranes, the author agrees with Barbour

that it is due to uterine contraction, and takes place in the layer of superficial cells,—the *locus minoris resistentiæ*.

Porak ¹⁹⁴_{May} publishes a case of hydramnios, with premature rupture of the membranes, followed by premature detachment of the placenta and hæmorrhage. The child was dead, but the mother recovered. Porak concludes that it is desirable not to rupture the membranes too early in cases of hydramnios, lest the placenta be detached and the child lost.

Obedrecht ³¹⁷_{p. 708} observed a case in which the placenta was partially detached from the uterus after a fall. Pregnancy went on to four weeks before term, when there was a flow of water colored with blood, and at the end of four days a living child was born without aid. The placenta showed evident signs of long compression from effusion of blood between the uterus and the placental mass, the alteration involving two-fifths of the placenta.

Lefour ²⁵_{p. 355} showed a placenta with velamentous insertion, and recalled the fact that the death of the foetus is general in such cases. In this instance, however, the foetus was living, hæmorrhage having been avoided by passing between the vessels.

W. Cheyne ⁵⁹_{Apr. 22} records a case of marginal placenta in a V-para. There was considerable hæmorrhage. Dilatation being incomplete, the membranes were ruptured and a tampon applied in the vagina. Violent contractions ensued. An hour later the tampon was removed, when labor began, followed by delivery, mother and child living.

Grimsdale ¹⁸⁷_{July} was called to see a woman suffering from profuse hæmorrhage, and found placenta prævia with prolapse of the cord, which no longer pulsated. However, he delivered the child, and, finding that the heart beat thirty a minute, he resorted to artificial respiration, saving the child. Clark, ²¹⁴¹_{p. 437, 722} in a case of placenta prævia, with hæmorrhage, tamponed the vagina and extracted a dead child by version, the mother recovering. Cameron showed a placenta which had been viciously inserted, the child being extracted by version across the placenta.

Clarence King ⁹_{Apr. 20} reports a case of placenta prævia in which hæmorrhage occurred at eight and one-half months, labor setting in at the same time. Tampon and ergot were used to excite uterine contraction, and some hours later, when the tampon was removed, dilatation was complete and the hæmorrhage had

ceased. The child, the placenta, and the membranes were expelled at the same time, the child being dead. Démelin⁷³_{Apr.} has collected forty cases of central placenta prævia, which he defines as an insertion in which the placental cotyledons completely cover the uterine orifice when the latter is completed, dilated, or sufficiently dilatable for the evacuation of the contents of the uterus. In order to rupture the membranes in the cases collected, it was necessary either to partly detach or to perforate the placenta. In eight autopsies it was found that implantation was complete, both anatomically and clinically. In all the cases the dilatability of the neck was very great. The mortality of the mother is 35 per cent.; of the child, 76 to 80 per cent. The best method of treatment is by tampons or Chassagny's dilator.

Dittrich³¹⁷_{p.340} performed an autopsy in a case of placenta prævia, and found that one portion of the placenta covered the uterine orifice, passing beyond it at a finger's length, and separated from the uterus by more than a hand's breadth. The blood-clots were fresh. Krukenberg³¹⁷_{p.403} gives a detailed description of a variety of central placenta prævia occupying a zone six or seven centimetres to the right. Strassmann³¹⁷_{p.209} relates an interesting case in which autopsy was performed. Considerable hæmorrhage occurred during labor. When dilatation was as large as a five-franc piece, bipolar version across the placenta was performed. The child, which weighed 3720 grammes (7½ pounds), was dead, and was delivered by expression. The uterus retracted, but blood continued to flow from the inferior segment. Intra-uterine tampons were applied, and injections of ergotine and 2 or 3 litres (quarts) of saline solution given. The woman died in an hour and a quarter, and at the autopsy supplementary cotyledons were found on the placenta.

O. C. Mackness⁸⁶_{Sept., '92} reports the case of a IX-para at term, with profuse hæmorrhage. Examination showed the existence of placenta prævia centralis. One foot came down, followed by the other, the hæmorrhage continuing. A fine child, dead, was extracted with difficulty, owing to the shortness of the cord. There was a large opening in the centre of the placenta, by which the hand had passed in artificial delivery. The mother seemed to do well, but was attacked by vomiting and syncope, and died one hour later.

Moses L. Gunn,¹⁹⁹_{July} in a case of placenta prævia, applied a tampon and administered ergot. Later, the tampon was removed, the hand introduced into the uterus, and as much of the placenta removed as possible. The hæmorrhage ceased, and the case was then left to nature. The child was born dead, but the mother recovered. Sequeira,²_{Mar.} in a similar case, in which dilatation permitted the passage of a finger, used Champetier's bag to arrest hæmorrhage, and, when dilatation was complete, delivered by version, mother and child doing well. Berry Hart,¹_{Feb.} quotes Barnes as regarding the best treatment to be by the use of tampons and his dilators.

Bertrand²¹²³ states that the tampon is always easily applied, and should be antiseptic. It seldom transforms an external hæmorrhage into an internal, this accident only occurring when the ovum is ruptured and the amniotic fluid has escaped, or if the uterus has become inert. The tampon will arrest the hæmorrhage in six out of ten cases; it will determine labor in the same proportion, within twelve hours after its application. During labor it increases the force of the contractions in most cases. It is painful, and causes dysuria and tenesmus, but ordinarily this pain is tolerable. During pregnancy and before labor it is the best method of arresting hæmorrhage due to vicious insertion of the placenta; if this hæmorrhage occur at the beginning of the seventh month, the flow may be stopped, permitting the pregnancy to go on to term. During labor the tampon is the best means of arresting hæmorrhage until dilatation is sufficient to admit of intervention.

DELIVERY.

Hæmorrhage.—J. W. Byers⁸⁰_{Sept.} denies the assertion that chloroform promotes post-partum hæmorrhage, his own experience being to the contrary.

Auvard and Touvenaint⁸¹_{Dec. 29, '98} recommend antiseptic intra-uterine tampons in post-partum hæmorrhage due to uterine inertia. Puech²³⁶_{Apr.} reports a case of normal labor complicated with serious hæmorrhage. Intra-uterine tampons were applied, and fourteen days after labor a fibroma was discovered and removed, the uterus being curetted. Recovery ensued.

Charles, of Liège,²⁵⁶_{Jan. 15, 20, Feb. 15} believes that the best method of combating post-partum hæmorrhage is to tampon the uterus and

vagina as far as the vulva with iodoform gauze, covering the vulva with an antiseptic compress. Externally, the abdomen is covered with a cotton-wool compress, secured by a bandage. In four cases thus treated the success was notable.

L. Butte⁶² has studied the placental respiration in the normal state, and following a hæmorrhage, in the mother, and concludes, as previously known, that after hæmorrhage the foetus yields up to the mother a portion of its oxygen, and, this indispensable element of its life being wanting, it dies rapidly from asphyxia.

J. Haig Ferguson⁸⁶ recalls two cases of Féré's, of pregnancy in hysterical women who were delivered in a state of trance. The ovaries were very sensitive to pressure. Basing his theory on three personal cases, Ferguson states that grave reflex phenomena, such as shock, may supervene in the third stage of labor, when, after the expulsion of the foetus, pressure is made upon the fundus of the uterus to facilitate delivery. The anatomical disposition of the organs at this moment places the ovaries under the hand of the operator.

PATHOLOGICAL CONDITIONS IN THE PUERPERIUM.

E. Lallemand²¹²⁴ believes that eschars of the vulva due to traumatism are sometimes the cause of febrile reaction, which may be mistaken for infection from the placental wound. The differential diagnosis must be carefully made between uterine infection and vulvar eschars. In the latter case intra-uterine injections would be both useless and painful, and simple local treatment, combined with the care usually given to puerperal women, would be sufficient.

J. W. Wilson²³⁴ reports a case of sudden death in childbed, the labor having been perfectly normal. On the second day there was some cramp and pain in the leg. On the third day, while Wilson was present, she was very well, but suddenly fell into a state of opisthotonos, with strong contractions of the uterus, and the heart ceased to beat. A subcutaneous injection of whisky revived her a little, but she soon fell back dead. At the post-mortem examination the uterus was normal, the mucous membrane having re-formed, and heart, kidneys, and lungs were healthy. In the brain there was a small cavity filled with pus on the surface of the sella turcica.

A. M. Neale, ⁵⁹_{July 15} having observed several cases of appendicitis following labor, believes that many cases reported as cellulitis, pelvic abscess, ovaritis, and salpingitis are in reality cases of appendicitis.

Kochenburger ⁵⁹⁵_{v.26, No.1} gives the history of a multipara who had borne twins the year before. The first had been spontaneously delivered, but craniotomy was necessary in the extraction of the second. Pus was discharged from the vagina for three weeks, the latter gradually contracting. Menstruation did not occur, though the molimina were present. The condition of the woman was very bad. Kochenburger found the vulva-orifice obstructed by a membrane which bulged out in front. Incision gave issue to a thick, black, gelatinous fluid, and the patient recovered, menstruation occurring regularly.

Gottschalk ⁴_{No.4} reports a case of deciduoma maligna, eight cases of which have previously been recorded. The patient was a VI-para of 42 years, in whom hæmorrhage occurred. Curettage failing to arrest it, Gottschalk removed with the finger a large piece of the placenta. During the six weeks following there was a russet-colored and then a bloody, profuse discharge. A second curetting was without result. A third attempt caused improvement for eight days, when the hæmorrhage returned, the condition of the patient being serious. Gottschalk dilated the uterus with laminaria, and removed with the finger-nail friable portions of the placenta at its insertion. Examination under the microscope showed these tissues to be sarcomatous new growths of the fimbriæ of the placenta. The symptoms recurred in fourteen days, and another examination showed that the growths had increased in size and extended to other parts. The temperature was 40.3° C. (104.5° F.) and the general condition bad. The uterus and ovaries were entirely removed and recovery followed.

Gottschalk thinks that this growth was entirely different from hydatiform mole, and that it bore no relation to uterine myoma.

Breasts and Lacteal Secretion.—V. Bue ²⁸⁶_{June} publishes a case of supplementary mammæ on the right and left sides. That on the left disappeared the day after delivery, the other persisted, diminishing after the child took the breast and increasing in the interval. L. Hart ²_{Nov.12, '98} reports a case of supplementary breast about one-third the size of the other two, and performing its functions very well.

Burns gives the history of a woman in her third labor, who had two supernumerary breasts from the rudimentary nipples of which milk flowed. Microscopical examination showed the corpuscles of colostrum.

H. Brodnax¹⁸⁶_{Aug.} observed the case of a woman in excellent health who lost her second child from non-retention of milk, probably from poor alimentation. A third labor was followed by the same symptom; electricity, cauterization, and compression had no influence on the condition. Guenel⁷²⁸_{Nov.} describes a case of suppression of milk due to applications to the nipple of a $\frac{1}{50}$ solution of cocaine. Milk returned when the lotion was suspended. Vialle²⁰⁸_{May} had a case of chronic suppurative mammitis simulating cancer (Reclus's mastitis).

Albuminuria and Eclampsia.—Duchemin,²¹²⁵ in reporting a case of eclampsia without transitory albuminuria, states that these two conditions are not always concomitant. Charpentier¹⁰_{Jan.} regards eclampsia without albuminuria as exceptional. Pinard saw three cases not preceded by albuminuria. Duchemin says that the absence of albumen from the urine renders it probable, but not positive, that eclampsia will not occur.

Rivet⁸⁵_{Aug. 23} concludes that eclampsia is not a disease of the puerperium only. It is observed in animals of either sex and undetermined age. It appears at different seasons of the year. He believes that it may have its seat in the vasomotor system, and that a sudden chill may be the determining cause. Revulsives, and notably frictions with mustard, followed, if necessary, by sinapisms over the entire body, have always given undoubtedly efficacious results.

Leitard publishes a memoir on the rôle of heredity in the pathogeny of eclampsia, and reports having observed the disease in twin sisters. J. Stewart⁶_{July} made a similar observation,—one of the sisters being in the sixth, the other in the seventh, month of pregnancy. S. F. Milner¹⁸⁶_{July} saw a case of puerperal eclampsia followed by post-partum hæmorrhage complicating a twin labor.

E. Keiser²⁰⁷¹₇₂ communicated a case presenting the following interesting points: Escape of the amniotic fluid three weeks before labor; occurrence of the disease in a multipara, post-partum, necessitating artificial respiration; ergot as a possible adjuvant cause, this possibility being strengthened by a case cited by Mal-

colm Black, in which ergot, given for hæmorrhage, was the cause of hæmorrhage.

A. Herrgott¹⁸⁴_{Feb. 1} is disposed to attribute the eclampsia of pregnancy to a toxin produced by a special microbe, acting upon the nervous system, already prepared by the gravid state. The effects of this toxin may be counteracted either by intestinal antiseptics or by diuretics, chief among which is milk. As soon as albumen appears in the urine, or there are any symptoms pointing to eclampsia, the patient should be placed on a strict milk diet.

Döderlein⁸¹⁷_{No. 1} made bacteriological examinations in eight cases, his results being in accordance with those obtained by Hoffmeister and Hagler, and contradictory to those of Gerdes. He believes that the bacillus observed by the latter is not the cause of the disease. Chambrelent⁹²⁷_{Feb. 27, '92} studied three cases, finding the blood-serum to be much more toxic than in the normal state. Inoculation of the blood and urine in various media yielded microbes, but exceptionally; and examination of the fertile cultures showed a variety of microbes, leading the author to believe that they were derived from the atmosphere of the room in which the cultures were made, and not from the blood or urine. This opinion was confirmed by making similar cultures from the blood of a newly-delivered and perfectly healthy woman.

Massen⁵⁸⁶_{No. 1} has studied the lesions of the internal organs during eclampsia. In two cases there were epithelial and interstitial nephritis; interstitial cirrhosis of the liver, with infarcts; considerable development of the connective tissue in the uterus and tubes; inflammation of the cardiac parenchyma; considerable distension of the cerebral capillaries. These cases show that all the organs are affected in eclampsia, and that the appearances of an acute intoxication are present.

Butte¹⁸⁴_{May} finds that if the amount of urea in the blood is twice the normal recovery is probable, while if it very nearly approach the physiological proportion the termination is generally fatal. This is also the case when the amount of the urea is five or six times the normal. From the researches of this author, it would appear that more importance should be attached to the hepatic than to the renal lesions.

J. Mercant⁶¹³_{Nov. 15, '92} reports a case of puerperal eclampsia in a woman with albuminuria. Phlebitis occurred, but recovery took

place by resolution. W. Wheaton⁶_{Jan. 21} observed tetany following eclampsia, and states that Dakin had collected eight cases of tetany in pregnancy. Touchard²⁴_{Feb. 6} records two cases of post-eclamptic amnesia. The first patient was 20 years old, who, during convalescence, could not remember how long she had been married nor the incidents of her daily life, although she recalled anterior circumstances. The second patient could recall nothing that had occurred since her entrance into the hospital.

Wilke³¹⁷_{Apr. 29} observed a case of infantile encephalitis consecutive to eclampsia in the mother, to which disease the author attributed it, explaining its rare occurrence by the statement that, labor being soon terminated, the child is not exposed to the influence of the maternal disease as long as in this instance.

Desbonnets²²⁰_{Sept.} believes that labor should be terminated as soon as possible in cases of eclampsia, by the forceps, anæsthesia being used. Hæmorrhage, if not too abundant, may be of value, replacing venesection. Milk diet, with purgatives and diuretics, should be prescribed to eliminate the toxins. Porak and Bernheim¹⁶²_{May} report several cases showing the good effects of subcutaneous injections of salt water. J. A. Wheeler²⁸⁷_{June 15} records a number of cases, and believes that copious venesection, followed immediately by an injection of salt solution, must produce good effects, without presenting the dangers of the old method of treatment. D. Hurt²⁰⁷_{May} relates six cases successfully treated with venesection and veratrum viride, or with the drug alone, which he considers an excellent remedy. Archibald Donald used venesection successfully in one case, and protests against the complete abandonment of this method, which may, when judiciously employed, save the patient from imminent death. Maygrier²⁴_{July 16} treated a serious case of eclampsia with anuria by blood-letting and gavage with milk. Diuresis was rapid and abundant.

C. Green⁹_{May 27} gives his experience at the Boston Lying-in Hospital during the past seven years. If eclampsia occurred during pregnancy, an effort was made to arrest it without interrupting the course of gestation. If the intestines and skin responded rapidly, there was hope that this result would be attained. Anæsthesia was used to check the attack, ether being employed where there was renal insufficiency and hydrate of chloral by the rectum if renal disease existed. No morphine

was used. Cold baths and pilocarpine were employed to stimulate the action of the skin, and, if not successful, croton-oil. Venesection was never employed. When delivery was necessary, dilatation was effected by means of the hand, an hydrostatic bag, or incisions of the cervix. If the child was living, there was no hesitation. If eclampsia came on during labor, the latter was hastened; if after labor, chloral and pilocarpine were employed. W. Berry²⁶_{May} obtained a successful result in one case by means of hypodermatic injections of morphine. Blanquinque³⁶³_{May} reports two grave cases successfully treated by injections of pilocarpine, venesection, chloral, and chloroform inhalations having been unsuccessful. A. C. Davidson¹³⁹_{Aug} praises veratrum viride and condemns morphine.

Gordon¹⁵⁹_{Dec., 72} obtained success in two cases with this medication. Straughn¹⁰²_{July} regards chloroform as the best remedy for the convulsions, combined, if necessary, with morphine or chloral, the latter being preferable. In a plethoric woman blood-letting gives good results. J. Stewart⁶_{July} induced labor in three cases, saving the patients. Charpentier²³⁸_{July} states that, all albuminuric women being liable to eclampsia, the urine should be carefully examined, and, if the slightest trace of albumen be found, she should be placed, from that time out, on an exclusive milk diet. This is the preventive treatment *par excellence* of eclampsia. If, in a case of eclampsia, and much cyanosed, the patient is strong, from 400 to 500 grammes of blood should be removed, chloral given, and milk diet instituted as soon as possible. If the woman is delicate, cyanosis not marked, and the attacks less frequent, treatment may be limited to chloral. Labor should be waited for and terminated naturally whenever possible. If the contractions are too weak, forceps or version may be used if the child is living, cephalotripsy, basiotripsy, or cranioplasty if it be dead. Intervention should be delayed until the cervix is dilated or dilatable, so as to avoid danger to the mother. Induced labor should be reserved for exceptional cases in which medical treatment has entirely failed. Cæsarian section and forced labor, especially by cervical incisions, should be entirely discarded in eclampsia.

In the discussion of this paper, participated in by Tarnier, Guéniot, Robin, and others, there was unanimous accord as to the prophylactic value of milk diet. As to the treatment of confirmed

eclampsia, chloroform and chloral appeared to be the favorite drugs. In no case was forced labor advised. As after-treatment the most rigid antisepsis was urged. Robin and Jaccoud recommended inhalations of oxygen. Jaccoud prescribes milk systematically for all pregnant women.

Merkel²_{Feb. 25} treated two cases by chloroform and morphine, both mothers and children dying. In a third case he made incisions in the cervix (Dührssen's method), there being twins. The first was delivered with forceps, the second by version. Mother and children were saved. J. Mariott⁶_{Jan. 25} reports three cases in which he was able to save the patients by forced labor, dilating the cervix with the finger in the first case, and with laminaria in the second; in the third he used forceps through the half-dilated cervix. He advises rapid intervention in eclampsia.

Ménager¹²⁷_{Mar. 12} used lactate of strontium in a case occurring in the seventh month, the attacks ceasing and pregnancy going on normally to term, when a healthy child was born. At a previous pregnancy the patient had had twelve attacks during labor, the child being born dead.

PUERPERAL SEPTICÆMIA.

Etiology.—Secheyron²³⁶_{Jan.} concludes that even with antisepsis an inevitable puerperal auto-infection exists, of external or internal origin. Auto-infection of internal origin may be genital or extra-genital, local or general. It may cause abortion or infectious symptoms before term or post-partum. Rendu¹⁴_{Sept. 6} reports a case of puerperal infection by the coli bacillus, with endocarditis vegetans and septic embolism of the Sylvian artery. From this case the author concludes that infection from this bacillus may always occur in the puerperium when the general condition of the woman is bad, as in rheumatism, overwork, or poverty, and especially when there are already alterations of the heart; hence the necessity for antisepsis in cases where the heart is liable to be secondarily affected.

W. C. Grigg⁶_{July 8} observed a case in which a small slough, due to a slight lesion of the cervix, caused secondary hæmorrhage, septicæmia, and death on the fifteenth day. D. Chiara⁹⁴⁸_{July} believes that when there is intra-uterine infection injections of sublimate are not sufficient. This is true in the majority of cases, but there

are others in which this treatment is absolutely insufficient, and in which more energetic measures are required, as swabbing out and curetting. D. J. Spottwood⁵⁹ gives the history of an infant, 1 month old, with erysipelas of the face, neck, trunk, and extremities. The case was cured. Four days after delivery the mother had had fever, and the author believes there was a relation between this and the erysipelas in the child.

Kronig⁸¹⁷_{N.S.} has found the gonococcus in the lochia taken from the uterine cavity of nine women affected with gonorrhœa. He concludes that in such cases gonorrhœa may invade the uterus after labor, the gonococci being found in large numbers. This infection may in itself provoke fever. He observed in no case a mixed infection by the gonococcus and other germs. Gonorrhœal infection, under these conditions, does not immediately endanger life, but provokes ulterior complications in the ovaries.

Coromillas¹⁹⁴_{p.163} has used phenacetin as a preventive of puerperal fever, and endeavors to show the good effects of the drug in this connection. In the discussion following the reading of his paper, Budin cited a case in which a physician had administered to his wife, newly delivered, 10 cachets, containing each 0.50 gramme (7½ grains) of phenacetin, within 20 hours. There were serious symptoms, but the patient became better. Fever occurred at the end of several days, the lochia being fetid, the temperature being persistently elevated. Budin introduced his hand into the uterine cavity and removed a cotyledon which was adherent. In this case, at least, the phenacetin did not prevent the development of septicæmia.

Leopold⁹⁵_{B.38,40} claims that women who have not been examined during labor generally have the best puerperium. In women thus treated, fever occurred only in 1 or 2 per cent. In the clinics, women suffering from gonorrhœa have a normal puerperium when left to repose and to normal evolution of the puerperal period. On the other hand, women who have not been examined often have fever, who, on microscopical examination, are found to be affected with gonorrhœa. The fever is due to the gonococcus about the cervix, the wound, etc. In such cases injections are not sufficient, but direct treatment is necessary. A woman, who before labor had no suspicious vaginal secretion, and no symptoms of gonorrhœa, showed unmistakable evidences on the fourth day after

labor. If, therefore, gonorrhœa should occur during the puerperium, it may be due to gonorrhœal endometritis, and suspicion of infection should not rest upon those who have had the care of the woman during confinement.

Gärtner, ⁹⁵_{B. 43, H. 2} from personal experience, concludes that the modes of infection of the puerperal and non-puerperal uterus by the cocci of suppuration are the same. Hackett ²⁸²_{Sept.} cites a case of septicæmia, interesting on account of the origin to which he attributes it. The patient had aborted in the third month, the placenta being retained. The uterus was curetted on the second day, and fragments of the decomposed placenta removed. The temperature fell to normal, but rose again several days later, the elevation being accompanied by a chill. The drainage of the house was bad, and Hackett attributed the septicæmia to this cause. The patient was removed to another house, where she rapidly recovered. Kirkpatrick and Evans also reported cases seemingly due to the same cause.

Microbiology and Contagion.—Chambrelent and Sabrazès communicated a paper relative to the passage of the streptococcus from mother to foetus, after inoculation of 1 cubic centimetre of a bouillon culture into the auricular vein of a rabbit. The blood of the heart, the liver, and the kidney of the mother and the body of the embryo showed the streptococcus in a pure state. The embryos were as large as a lentil, and were twelve days old. They were infiltrated by small chains of the streptococcus, as shown by sections fixed in absolute alcohol, stained with Ranvier's picrocarmine, according to Gram's or Weigert's method.

C. W. Galloupe ⁹⁹_{Aug. 17} reported a case of erysipelas during and after labor, which he attributed to external infection. He believes the streptococcus of puerperal fever and the microbe of erysipelas to be identical.

Cartwright ⁸¹_{Nov., 98} observed a case of puerperal septicæmia in which the disease was communicated by the mother to a little daughter, 3 years old, who had an open wound due to a burn. She was accustomed to pass one or two hours daily in the bed with her mother. Poncet ²³⁶_{July} discusses the death of Dr. Emile Blanc from subacute septicæmia due to infection of the hand while extracting the placenta in a case of infection. L. Basset ²¹²⁸ believes that antiseptic measures have not caused the complete disappear-

ance of puerperal septicæmia, but that it is met with in abortive forms, attenuated, masked, prolonged, diphtheritic, or phlebitic. Most of the attenuated forms may be diagnosed clinically, from the general condition, elevation of temperature preceded by chill, rapidity of pulse, fetid diarrhœa, and albuminuria. Masked forms are more difficult of diagnosis, but bacteriological examination of the lochia and the blood will be of assistance, showing the existence of the streptococcus. In the abortive forms, or at the moment of the first attack in the other varieties, the microbe will be found in chains of eight or ten, the number diminishing as the condition of the patient improves. In the prolonged form the streptococcus persists in the blood after it has disappeared from the uterus, and may be found in short chains as micrococci or diplococci during the apyretic intervals, the long chains appearing with fresh attacks. The microbe undergoes a progressive attenuation of virulence after each attack or localization, which therefore becomes less and less important. A patient cannot be considered as cured until the streptococcus is found to have definitely disappeared from the circulation. If, in treatment, antiseptic injections do not cause the disappearance of the microbes and the septicæmic condition, the uterus should be curetted and drained.

Treatment.—Rivière ⁷³_{Apr.} regards curetting as indicated after abortion, for persistent hæmorrhage due to retention of the membranes, and after labor at term, when intra-uterine injections are not sufficient to cause the disappearance of symptoms of local infection. Early curetting is justified because it may prevent local symptoms, while, employed later, it may not succeed in arresting the progress of a generalized infection. The only danger is perforation, but this may easily be avoided. Anæsthesia under chloroform is generally necessary. Rivière has treated successfully thirteen out of sixteen cases of puerperal infection by this method. Perry, of San Francisco, ⁷⁷_{Jan.} successfully treated six cases of grave puerperal endometritis by curettage and injections of sublimate twice a day. Marlier ¹⁸⁴_{July} reports a case treated in the same way. A pelvic phlegmon and perinephritic abscess occurred, and were cured by surgical treatment. The author regards the injections as insufficient, and believes that immediate curettage should be performed. He proposes that midwives be subjected to medical supervision in their practice, and that they pass fifteen days at a

maternity each year, as required in Germany; or, in default of more strict rules, that they be obliged to use the thermometer and to call in a physician when the temperature exceeds 38° C. (100.4° F.).

Foster Scott¹_{Feb. 4} also esteems intra-uterine injections insufficient, and advocates the use of the curette, the uterus being washed out with peroxide of hydrogen, after which sublimate injection may be used, with a tampon of iodoform gauze.

Robert Barnes²_{Sept. 16} also discusses the treatment of puerperal septicæmia at length.

A. Ouimet¹²²_{Apr.} regards intra-uterine injections as a rational and efficacious method of treatment. They should be made with a sound, which assures the easy flow of the solution and the complete washing of the uterine cavity. For this purpose Budin's or Doléris's sound is suitable. If an obstacle be encountered in its passage, force should never be employed, as the softness of the tissues renders perforation possible. A 1-to-5000 solution of bichloride of mercury should be used, or, where this is contra-indicated, a 2-to-100 solution of carbolic acid. Hanbury Frere²_{July} claims that sublimate is very dangerous, and prefers a hot solution of biniodide of mercury.

Russel Bellamy¹_{Feb. 4} presented a new instrument for irrigating the uterus in puerperal septicæmia. It is composed of a flexible tube the uterine extremity of which is pierced with twenty holes, and a glass tube in which the first is placed, large enough to give passage to the injected liquid and to the detritus which may be found in the uterine cavity. In this way the contractions in no wise influence the return of the injected liquid.

Currier²⁷_{June} speaks of the good effects of oxygen in septicæmia, and reports two cases. Reynolds⁹⁹_{June 9} discusses the early diagnosis and prompt treatment of the disease. Le Roy des Barres¹⁰_{Mar. 14} reports a case of ovariectomy in the course of prolonged puerperal septicæmia in a young woman, the unilocular cyst being extracted entire after puncture, which gave exit to four litres (quarts) of fetid pus. He concludes that puerperal septicæmia should not be regarded as an absolute contra-indication against the radical treatment of ovarian cysts. W. Goldsborough¹_{Feb. 16} performed hysterectomy five days after labor for grave puerperal metritis, the patient recovering.

MISCELLANEOUS COMPLICATIONS.

Peyrot ²³⁶_{Nov., '92} reports a case of subdiaphragmatic abscess in the puerperium, which was opened by a transpleural incision. Death occurred in two months, from septicæmia. At the autopsy a calcified hydatid cyst of the kidney was found.

Rancurel ²¹²⁷ discusses metastatic puerperal choroiditis, which generally appears in the second week, but may occur much later, and ends in amaurosis. The prognosis is grave, if not for the sight, at least for the affected eye, which is lost. The treatment is that indicated for septicæmia. Bastide ²¹²⁸ places the ocular affections of the puerperium in four groups: troubles due to infection by the uterine wound, a veritable local manifestation of puerperal fever; those due to blood-poisoning by the retention of excrementitious products, as in eclamptic amaurosis; those due to increase of vascular tension, as retinal hæmorrhage, glaucoma, etc.; those due to an acute anæmic condition, as hæmorrhagic neuro-retinitis, or to chronic anæmia or general debility following repeated pregnancy or lactation, as kerato-conjunctivitis, scleritis, cataract, optic neuritis, accommodative asthenopia, hemeralopia.

Durante ⁷_{Dec., '92} observed a case of acute pneumonia due to the Talamon-Fraenkel diplococcus, in a recently-delivered woman, on whom symphyseotomy (Ribemont-Dessaigues) had been performed. The child also suffered from pneumonia. Both died. Rothrock ²_{Jan.} observed puerperal pyelitis following cystitis. The patient had been catheterized the first day after labor. Budin ⁷³_{Apr.} discusses puerperal arthritis of the sacro-iliac symphysis, as relates to diagnosis, prognosis, and treatment. Schramm ³¹⁷_{p. 676} relates a case of scarlatina in the puerperium. Lusk ⁶_{Dec., '92} claims that thrombosis of the veins is the most frequent cause of sudden death in labor and post-partum. He reports the case of a woman who got up on the fourth day, in spite of the advice of her physician; on the twelfth day she had symptoms of pulmonary embolism, and recovery was very slow.

Janoff, of Moscow, ³⁶¹_{Mar., Apr.} endeavors to show the intimate relation existing between the puerperium and the psychic troubles which so often follow. E. and J. Sottas ²³⁶_{June} noted a case of generalized puerperal paralysis (puerperal polyneuritis). Heyse ³¹_{Feb., 1} observed the case of a IV-para of 34 years, delivered artificially, forceps being used. On the seventh day symptoms of tetanus

appeared and death occurred on the ninth day. Pure cultures of the tetanus bacillis were obtained from the lochia. Four mice inoculated with the lochial secretion during life were attacked by the disease.

G. H. Rohé ⁵⁹_{June 18, '92} has published a brochure on the influence of puerperal lesions of the uterus and vagina in the production of puerperal insanity. He believes infection to be the cause in the majority of cases. The insanity appears toward the tenth day and is accompanied by a rise of temperature, the degree of mental trouble appearing to depend upon the importance of the genital lesions.

Moore, of Camden, ⁸¹_{Aug.} reports a case of aphasia following twin delivery. There was considerable post-partum hæmorrhage and syncope. The patient got up on the twelfth day. During the night she felt a violent pain in the head and the nape of the neck. Two days later she lost consciousness, the condition continuing for three or four days. Little by little she returned to herself, and appeared to understand what was said to her, but could not speak. Speech returned slowly. Carré ²³⁸_{July} finds, from a study of the literature, that aphasia appears rarely during pregnancy, but generally the first week after labor, rarely after fifteen days. Of sixteen cases there were three deaths. If the aphasia is of neuropathic or hysterical origin, it is of short duration. In other cases albuminuria may be a sufficient cause, the prognosis depending upon the degree of renal alteration, the aphasia progressing until uræmia occurs. In half the cases it co-existed with right hemiplegia and was due to embolism or thrombosis. Aphasia may appear in the next pregnancy, though the first attack may have been cured. The patient should therefore be cautioned against future pregnancy, as a fresh attack may awaken old cerebral lesions and lead to softening of the brain.

C. K. Mills, of Philadelphia, ¹¹²_{May} discusses neuritis and myelitis, and the forms of paralysis and pseudo-paralysis following labor. Among these he enumerates traumatic paralysis of the peroneal type, usually associated with severe neuritis; sacral and sacro-distal neuritis, sometimes accompanied by a pseudo-paralysis and often maintained or aggravated by disease and displacement of pelvic organs and tissues; puerperal neuritis, local and multiple, and due to septic or other infection; the neuritis, paralysis, and

pseudo-paralysis of phlebitis and phlegmasia alba dolens, which are often septic, but have special features; puerperal myelitis occurring under the same conditions as the forms of septic and infectious neuritis. Brief reference is made to forms of hysterical and reflex paralysis, which must be diagnosticated from the affections under consideration.

DISEASES OF THE NEWBORN.

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TUMORS.

TUMORS associated with the process of parturition are not unusual, and they are often of the greatest significance as regards the future well-being of the individual. Hæmatoma of the sterno-mastoid may occur from violence in instrumental delivery or from misdirected efforts of nature.

D'Arcy Powers ²_{Feb. 11} read a paper on the intimate relationship (admitted by some, denied by others) between hæmatoma of the sterno-mastoid and wryneck. Cases of this tumor are recorded by Staunton and Booker. ⁷⁶⁴_{May} The tumor in the first case was no larger than a horse-chestnut, in the second as large as a hen's egg, these representing the limits. Breech presentations favor the development of the condition; the muscle of one or both sides may be involved, that of the right side being involved the more frequently. A peculiarity to be remembered is that the tumor may not appear for one or more weeks after birth. Quisling and others believe the induration in the muscle to be due rather to inflammation than to simple effusion, but the latter is a sufficient cause in some cases. Kindred to the tumor just referred to is cephalhæmatoma due to violence, and consisting essentially of an effusion of blood. It may appear at any portion of the scalp where pressure has been inordinate.

Lugeol ⁷⁰_{Sept. 17} reports a case occurring in the left occipito-parietal region, with a smaller tumor similarly located on the right side. At the meeting at which this case was presented, another case was reported in which there were three tumors on the same head. The treatment may be expectant, or the tumor may be punctured and compression used. Suppuration and other disagreeable symptoms may result. Cases are reported by Withrow ²⁷_{May} and

McKee.²⁷_{Nov} This condition may simply be the collection of serum so often seen in vertex presentations, under the name of caput succedaneum, which is insignificant, evanescent; or it may be a tumor of constantly increasing size, which does not yield to treatment and results in convulsions and death. The writer has seen cases in which death was due to unrelieved hæmorrhage. Cystic tumors of the scalp, apart from hæmatomata, are not common. A congenital tumor of this character, apparently unconnected with the brain or spinal cord, was seen by Inglis.³⁶_{May 10} It was in the occipital region, was larger than the head, and caused considerable delay in delivery, the presentation being vertical and normal. The tumor was removed on the third day of life, the child making a good recovery.

Quite unique was the case reported by Pamard,¹⁴_{Apr. 16} in which a cystic tumor weighing a kilogramme (two pounds) was removed from the right lateral cervical region of a newborn infant. The tumor was developed in the cellular tissue, and in addition to fluid contained a foetus, the lower limbs and one of the upper limbs of which were well formed. This is one of the very rare forms of development by inclusion.

An interesting case of foetal hydrocephalus, with spontaneous cure, was seen by Schrader,²_{July}, the scalp showing a bright-red scar, two and a half inches long and one-half inch broad, to the left of the median line, near the sagittal and frontal sutures. The cranial vault under the scar was deficient, the scalp being adherent to the periosteum. Acute hydrocephalus had occurred late in foetal life, with absorption of the cranial bones and hernia of the meninges. The scar-tissue began to fall off a few days after birth. The child died when 3 months old, though not from the disease, which developed and terminated during foetal life. Such evidence of the active reparative processes of nature is extremely interesting and important.

A case of congenital umbilical hernia is reported by Porak.¹⁹⁴_{May} The tumor was developed within the umbilicus and was the size of a small egg. It was operated upon, the hernial opening sutured, and recovery followed. Lindfors has collected the reported cases of this variety of tumor, gathering sixty-five in all. Prior to the antiseptic era, treatment was by compression. Since then twenty-four cases have been treated surgically, with four deaths.

DEFORMITIES.

Ballantyne²⁰⁷⁶ makes the following classification of diseases of the foetus: 1. Idiopathic diseases, originating, so far as is at present known, in the foetus itself. 2. Transmitted diseases, due to disease in the parents. 3. Traumatic morbid conditions, due to injuries received during pregnancy or labor. 4. Toxicological conditions, resulting from the administration of poisonous substances to the mother. 5. Death of the foetus, and post-mortem appearances.

That common accident in forceps deliveries—depression of the cranial bones—was treated by Irving W. Smith²⁷ as similar accidents are treated when due to other causes; that is, by incision of the scalp, division of the depressed bone with a saw, and elevation of the fragments. This is sound surgical treatment, but, in cases in which the depression is not great, elevation will usually take place spontaneously. If it do not take place within a few days, the surgical treatment is indicated, and may prevent future idiocy or imbecility.

Moussous²⁵_{Oct., '92} calls attention to a variety of cranial deformity which he has frequently observed in young infants, in which, when seen from behind, the skull is flattened in the occipito-parietal region, and when seen from the front there is a projection of the frontal region on the same side. Moussous attributes the condition to the habit of mothers of habitually laying their infant on one side, or in habitually holding the infant against one breast.

Absence of the meatus urinarius should be discovered and remedied by incision and the use of bougies for a sufficient time. A case is reported by O. P. Sweatt.⁷⁸⁸_{June} Operations of this character usually yield the happiest results. Schreve⁷⁹⁰_{v.4, No.1; Aug.}⁶⁷³ reports the rare deformity of brachygnathia in a newborn child. Only four cases have hitherto been reported,—those of Vrolik, Otto, Gürdan, and Arnold.

Fracture of the humerus during delivery, whether spontaneous or due to the action of the accoucheur, is an accident which should not be overlooked, and should receive careful attention. Gerber⁸⁶³_{May} reports a case of this kind which was at once recognized, the fracture reduced, and the arm properly bandaged. Union of the fragments was firm in ten days, and a useful arm was thus saved to the child.

EYES.

A case of gonorrhœa in the newborn infant, with subsequent ophthalmia, rhinitis, and otorrhœa, is reported by Krönig.³¹⁷_{No. 11} The mother was suffering with gonorrhœa when delivered with forceps, January 25th. The infant developed gonorrhœal ophthalmia on the third day. Nitrate-of-silver solution was applied to the eyes, and compresses moistened with sublimate solution were placed upon the lids. The nasal mucous membrane became much swollen, and the secretion from it contained gonococci. Three days later there was purulent inflammation in the right ear, the secretion containing gonococci. Final result not mentioned.

W. W. Heelas⁶_{Apr. 8} reports the excellent results of the Crédé method of treatment in the London General Lying-in Hospital. Of seventeen children born in this hospital from January 1st to January 22d, seven had gonorrhœal ophthalmia. After the Crédé method was adopted as a routine method, all cases disappeared. Höck³¹⁷_{No. 17} reports an unusually severe case of gonorrhœal ophthalmia with associated arthritis. The left cornea was perforated, and a few days later the left knee- and hip- joints developed intense gonorrhœal arthritis, the pus obtained from them containing gonococci. Bettman⁶¹_{Aug. 12} is very positive in his objection to the use of so weak a solution of nitrate of silver as a 2-per-cent. solution in gonorrhœal ophthalmia.

SKIN.

Somma²⁰⁷⁷_{Oct., '92} narrates cases of the rare disease sclerema neonatorum, and recommends the use of warm baths (32° to 35° C.—90° to 95° F.), oil inunctions, flannel clothing, inhalation of oxygen, and hypodermatic injections of caffeine. Pavone²⁰⁷⁷_{Oct., '92} reports twenty-three cases of this disease from the Naples Hospital for Incurables. In the layers of sclerosed cutis he found two forms of change,—one primitive, consisting in exudation and small-celled infiltration in the rete Malpighii; the other final, in a development of connective-tissue fibres. Porteous¹_{Apr. 22} reports a case of this disease, which he saw four days after birth. The color of the skin in many places was purple, and on the extremities and chest it felt like thin India rubber stretched over a frame. The child was treated with hot baths and friction, and was wrapped in cotton. It died on the sixth day.

Guéniot ^{July 19}¹⁴ describes a case of the rare condition adermogenesis. The child was 2 days old; the skin of the lower limbs was red and transparent, and in patches where the skin was healthy the latter had a cicatricial appearance. The hands were covered with bullæ and pustules. Hervieux thought the case was one of pemphigus in which the particular lesions had disappeared from the lower limbs.

Syphilitic pemphigus is described by Fest. ^{Mar. 15}¹⁵⁰ In this disease infection occurs at conception, being derived from the syphilitic father. Two forms are seen. In the first, the child is born with indications of hereditary syphilis, with bullæ or excoriations upon the skin. In the second, syphilis is latent for a time, appearing in adult life as pemphigus. In both forms the prognosis is bad. Several cases are narrated with the treatment which the author thinks appropriate. One out of three cases was fatal. Semtchenko ^{No. 48, 72}⁵⁸⁶ has made a study of five cases, the children being 3 to 6 days old, and thinks the infectious elements of the disease were caused by the nurse who attended the cases, being transmitted to each in succession. Of the erythematous eruptions in the newborn, Callais ^{Mar.}²⁴⁵ has contributed a paper on the ulcerating form, which is especially liable to occur in children suffering with diarrhœa, the lesions occupying the buttocks on both sides of the anus, where the friction is greatest. The lesions may also be upon the thighs or heels, and have no relation to syphilis. The cases call for careful cleanliness and an absence of friction.

Eröss ^{May}³⁶⁶ describes a case of leptomeningitis in an infant, at the base of the brain, consecutive to an effusion of blood. It began with high temperature the day after birth, and after continuing forty days, with development of sclerema and gangrene of the fingers, ended fatally. Another case of pachymengitis and bronchopneumonia with persistent high temperature, was fatal on the seventh day. A third case, reported by the same author, was one of hæmophilia, apparent at birth, and fatal in twenty-three hours. The mother and maternal grandfather of the infant had a history of this condition, and the inference is that heredity had something to do with the case,—not necessarily a just conclusion.

Barlow's disease is discussed by Heubner, ^{Oct. 5, 72}³⁴⁶ who saw four cases. About fifty cases have been recorded. It is particularly a disease which occurs at the close of the sucking period, but may

possibly occur in the newborn. It resembles scorbutus, and is prone to occur in rachitic infants. Pain in the extremities, especially the lower ones, is a marked symptom, accentuated by any attempt at moving. Sweating, especially about the head, and elevation of temperature are also present. The appetite is lost; the joints are not swollen as in rheumatism, and the pain seems to be located in the diaphysis of the bones. The gums are spongy, dark-red in color, and bleed readily; there is also an œdematous, hæmorrhagic swelling of one or both eyelids. While the cases show resemblance to scorbutus, Barlow decided that the true relationship is to rachitis. With this view Heubner does not agree, but concedes that the disease may be a combination of scorbutus and rachitis.

Theodor ¹¹⁸_{v.15,p.364} narrates an unusual case in which septic infection occurred in a newborn infant, followed by gangrenous destruction of the skin and subcutaneous cellular tissue, with final recovery. Cases of this disease may be divided into three groups. Of the first, 39.5 per cent. of all cases die in the first three days of life, and there can be found on the body no trace of the avenue by which the poison entered. Of the second, 49.5 per cent. of all cases are cases of pyæmia in which the poison has entered through the navel wound. Of the third, some of the cases occur as complications in various phlegmonous processes and suppurations; others are infected in connection with syphilis, ozæna, periostitis, osteomyelitis, rhagades about the anus, etc. Rarer than all others are those in which infection has followed vaccination.

NERVOUS SYSTEM.

Of the diseases of the nervous system to which the newborn are susceptible, none is so prevalent as trismus or tetanus, though its frequency has been greatly reduced in recent years, and its pathology placed upon a more rational, if not yet upon an entirely stable, basis. Escherich ⁸_{Aug.10} observes, pointedly, that the knowledge that it is due to infection of the umbilical wound with the tetanus bacillus has not yet yielded therapeutic results. He reports four cases treated with Tizzoni's antitoxin, the incubation period lasting two, nine, seven, and one days respectively. Only one case recovered. Autopsy showed septic inflammation of the umbilical wound in all three cases, with peritonitis in one case and pneu-

monia in the other two. The value of this method of treatment has not yet been sufficiently tested.

Samson¹²⁷_{Dec. 12, '98} reports a case, in a child 15 days old, in which cure resulted from the use of mercurial ointment along the vertebral column, prolonged warm baths, and chloral in large doses. This author discusses the origin of the bacillus of Nicolaier, and thinks that the equine theory is being abandoned in favor of a telluric origin. A fatal case is recorded by Gilford,²_{Feb. 11} the description of the phenomena connected with the spasms being very minute and accurate.

BLOOD.

The morphology of the blood of the newborn has been studied recently by Woino-Oransky.¹⁸_{Jan. 16} The blood was obtained through a puncture in the heel, in cases of footling presentation before birth and before the first inspiration; then on the first and sixth days; on the first and third days; on the first, second, third, and sixth days, and daily. Twenty-nine newborn children were thus examined, a premature child at the sixth month, another at the seventh month, two at the eighth month, four at the ninth month, the others at term. Three of the patients suffered with icterus, and two with trismus.

With reference to the white corpuscles (1) in a cubic millimetre of the blood of the newborn, the number of white corpuscles immediately after birth was found to be twice as great as in adults; (2) in the premature children the number of white corpuscles was greater than in the mature; (3) the variations in the number of white cells was conversely as the changes in the weight of the children; (4) if the body-weight during a given time did not change, the number of the white cells during that period became less; (5) the number of white cells in the first twenty-four to twenty-eight hours after birth was greater than a few days after birth; (6) the number of overmature white cells was less than in adults; (7) in premature children the relative and absolute number of white corpuscles immediately after birth was greater as to immature elements than in mature children; (8) the entire number of white corpuscles was directly proportional to the absolute number of overmature elements; (9) the diminution in the number of white corpuscles in a cubic millimetre of blood was dependent upon a deterioration in the nutrition; (10) in

asphyxia of the newborn the number of the white corpuscles was increased, the destruction of the overmature cells was increased, and the production of young cells diminished; (11) with diminution in the body-weight the morphological metamorphosis of the blood was increased; (12) with increase in the body-weight the morphological metamorphosis in the blood was diminished; (13) if the body-weight do not change there is less morphological metamorphosis than when the weight diminishes; (14) with increase in the body-weight the white corpuscles tend to become mature; (15) if with lessening of the body-weight the absolute number of overmature elements diminishes, the absolute number of young elements will also diminish.

With reference to the red corpuscles, (1) in a cubic millimetre of blood of the newborn the number of red corpuscles is greater than in the adult; (2) if the body-weight is considerable, the number of red corpuscles is less than if the body-weight is small; (3) in the first few days after birth red corpuscles with nuclei may be seen; (4) stages of development and change can be noted from the red to the white corpuscle; (5) the coloring power of the blood of the newborn is greater than in adults.

UMBILICUS AND URACHUS.

The treatment of the umbilicus is always a matter of serious importance. Inattention to this subject is the cause of infection and death in more cases than is generally believed. The proper dressing of the umbilical stump is, therefore, worthy the attention of every obstetrician. Lvoff^{109 580}_{June, No. 3} recommends the following method: After the infant has been bathed, the stump should be dried with hygroscopic cotton-wool, wrapped in a compress of the same material soaked in glycerin, and the abdomen then encircled with a gauze bandage. This dressing should not be disturbed until the funis has separated. A second bath is then given and the umbilical wound powdered with a mixture of equal parts of iodoform and subnitrate of bismuth. The following conclusions are offered: 1. In most cases the funis falls off in four to six days. 2. The stump undergoes mummification as the result of the hygroscopic action of the glycerin used. 3. After the detachment of the stump an even, raw surface is left, which shows no signs of irritation.

Gobilovici¹⁴_{July 28} has found the staphylococcus albus and the colon bacillus in the umbilical discharges, which will account for many of the cases of umbilical infection. The streptococcus has also been found in umbilical discharges. This writer favors Lvoff's method of treating the stump with glycerin. Eröss⁵_{Aug.} believes in cutting the cord close to the body immediately after birth, and in not bathing the child until three to six days after birth. Of one thousand cases in which bathing was thus deferred until the umbilical stump had granulated, there were bad symptoms in none. Ehrendorfer¹¹⁸_{v. 32, No. 41} contents himself, in ordinary cases, with the simplest measures, thorough cleanliness being the chief end to be attained. If the umbilicus has a suspicious appearance, he recommends that it be powdered with salicylate of starch. If the umbilical wound is slow in healing, he recommends irrigation with a 3-per-cent. solution of boric acid or a 2-per-cent. solution of carbolic acid. If there is general infection, with unfavorable prognosis, in addition to local cleanliness, alcohol is to be administered and the nutrition is to be carefully regulated. Infants with infection of the umbilicus, in hospitals, should be thoroughly isolated from the uninfected. Epidemics of this condition in hospitals have occasionally been reported; thus, at the Lyons Hospice de la Charité⁸⁰⁸_{Oct., 70} such an epidemic occurred in 1857. Of course, antiseptic precautions were then unknown as they are now understood. The observation in this case was that the falling of the cord was delayed, and that the ulceration was healed only by the use of chloride of zinc. Such treatment would now seem unreasonably severe, unless the solution were a very weak one.

Hæmorrhage from the umbilicus should always be guarded against. Roper²_{Feb. 1} reports a case in which a child bled almost continuously from the umbilicus and other parts until death resulted, on the twenty-fourth day. Cases of this character are usually due to a dyscrasia or diathesis; they may occur in syphilitic or rachitic infants, and the bleeding may take place after the umbilical wound has to all appearances healed. Lefour¹⁸⁸_{Feb. 19} reported such a case before the Obstetrical Society of Bordeaux, which excited a very lively discussion, especially with reference to the method adopted for controlling the bleeding. In Lefour's case five needles were made to pierce the umbilicus in parallel lines, and an elastic ligature was

thrown tightly around them. In course of time the tissue included by the ligature sloughed away, and, although there was subsequent hæmorrhage from the nostrils and elsewhere, there was none from the umbilicus. The author of the method thought the plan he had adopted was a good one. With this opinion we differ, as did most of those who criticised his statements at the time they were made. As shown by his critics, the principle adopted is that which was long ago recommended by Depaul, Dubois, and possibly others. The degree of irritation caused by the inclusion of so much and such sensitive tissue must always be very great, and convulsions and death would result in many, if not in most, children. That Lefour's patient escaped (if we have correctly understood his method) is due to good fortune rather than to the desirable features of his method. The subsequent cicatrization of the wound and presence of an unsightly scar instead of a normal umbilicus is another objection which may be considered. A somewhat better method of relieving umbilical hæmorrhage of this character is that mentioned by Rocaz,¹⁸⁸ also before the Bordeaux Obstetrical Society, in which the umbilicus was tied in three segments with catgut. Even this might be followed by sloughing of the umbilicus, and we should recommend in preference any method of ligation, either with penetrating pins or ligatures, by which the pressure should be removed as quickly as possible after hæmorrhage had been checked, and before the vitality of the tissues was destroyed.

A rare form of hæmorrhage in the newborn occurred in a case of Ramsay Smith's,³⁶ the hæmorrhage being from the urachus into the bladder, whence it was evacuated through the urethra whenever the bowels moved. It was supposed that the blood came from the patent hypogastric arteries, at first through the umbilicus, and then, when that outlet closed, through the urachus into the bladder.

Gampert,¹⁹⁷ reports the rather unusual condition of entero-umbilical fistula. It was not observed until the fifth day from birth, before the umbilical stump had fallen. There was a small tumor of the umbilicus, with an opening from which issued blood and fæces. Gradually the umbilical ring contracted and the bleeding ceased. The thermo-cautery was applied to the entire raw surface of the umbilicus. On the twenty-second day a silk ligature was thrown around the tumor, and by the thirty-sixth day com-

plete healing and cure had taken place. Concerning the origin of the fistula, several theories were advanced with varying degrees of plausibility. As the child recovered, the exact truth was not ascertained.

Lindfors ²⁹⁷_{Apr. 1} writes upon the subject of umbilical hernia and its treatment. The sac in this form of hernia consists of both amnion and peritoneum. The tumor may be as small as a hazel-nut or as large as a child's head, and may include not only intestine, but liver, and even stomach, heart, or lungs. Lindfors has found 65 cases of this accident, in which treatment of a curative nature had been attempted. The first 34 cases were recorded between the years 1751 and 1882, and all were cured. In half the cases only a pressure bandage was used, in the others compression or some form of occluding ligature. In 1882 Lindfors performed the radical operation, since which time it has been done 24 times, 20 times with success. There is nothing peculiar about his operation, and, as Lindfors says, it is not difficult nor especially dangerous. Berger ¹⁸²_{June 25}; ²_{Sept. 25} operated on a female infant with umbilical hernia, thirty hours after birth. The child was entirely well in two weeks. Guéniot is in favor of publishing the details of all cases of this character, as he believes no two of them present exactly similar conditions.

LIVER.

The work of Schiff ¹⁵⁸_{v. 16, Nov. 2, 4} in connection with icterus neonatorum is quite well known. Another contribution by him has appeared during the past year. He believes that the blood has something to do with the origin of the disease, though it is not the chief factor. The destruction of the red corpuscles is not the cause of the condition, for then icterus would appear in every case in which the tying of the cord was delayed; further, the condition would not be manifest until the third or fourth day, instead of appearing, as it does, on the second or third; while in every case of high fever in the newborn icterus would be present. Schiff discards all the hæmatogenous and hæmo-hepatogenous theories of the disease.

Wolczywski ⁵⁷_{June 25; July 9} discusses the subject as it was observed by him in the course of two epidemics during two consecutive years, referring first to the work of Winckel in this line, after whom the condition is sometimes known as "Winckel's disease." The fol-

lowing are the symptoms of the affection: From one to twelve days after birth the children appear to be ill, refuse the breast, and show an icteric hue of the skin, which subsequently appears cyanotic, especially around the mouth and nose, the genitals, and the extremities. There may be vomiting, a free secretion of mucus in the mouth, and frequent attempts to void urine and fæces. The stools resemble meconium and the urine is scanty and dark-colored. There is rapid emaciation and mild convulsions. If recovery take place, the inclination to nurse gradually returns and the urine and stools resume their normal appearance. Bacteriological experiments by Wolczywski induced him to believe that the disease was due to infection with the colon bacillus, the infection being produced by culture of the bacillus in the buccal epithelium of the infant.

Quisling ³⁶⁹_{v. 2, p. 148} regards the disease as hepatogenous in origin, basing his opinion on the study of fifty cases. He calls attention to the dyspeptic and gastro-enteric symptoms which always attend it. Especially is there noticeable in most cases a gastrointestinal catarrh analogous to the catarrhal icterus in adults. He thinks this may be due to congenital narrowing of the common bile-duct. The influence of bacteria in causing the disease may be considerable, but he does not believe that the time of tying the cord, whether late or early, has any bearing upon the causation.

The significance of sugar in the liver of the newborn is discussed by Colrat and Fochier. ²¹¹_{Dec. 18, '92} It is not found in the liver of those who have died of athrepsia, syphilis, or diarrhoea, but only in those who have died during or shortly after accouchement. It is possible, therefore, that its presence may be a fact of great medico-legal importance, indicating that death took place rapidly, as by asphyxia, strangulation, submersion, etc.

ALIMENTARY TRACT.

Gastro-intestinal hæmorrhage in the newborn, according to Herrgott, ²_{May 20} occurs once in two thousand cases. Its etiology is uncertain, though hereditary influence is probable in some cases. Bar thinks it is due to streptococci in the blood. Syphilis and hæmophilia are causative in some cases. Münchmeyer has found it associated with ulceration of the duodenum. Nieberding found the arterial duct open, with narrow pulmonary arteries and over-

filling of the arterial system with venous blood. Emmett found it, in one case, associated with the administration of ergot to the mother. This accident is a very grave one, from 50 to 60 per cent. of the cases resulting fatally. It is necessary, as Oui¹⁸⁸_{Aug. 27} has observed, to differentiate those cases in which the hæmorrhage is associated with fatal lesions from those in which nothing but congestion of the gastric or intestinal mucous membrane can be found. The treatment should arrest the hæmorrhage, act upon the lesion or the general disease which is the cause of the trouble, sustain the patient's strength, and overcome the anæmia. Small doses of perchloride of iron may be given internally, or extract of rhatany, ergot injected hypodermatically, warm baths employed, with heat in other forms. Acute peritonitis in the newborn has been seen by Cassel¹⁵¹_{Jan.} three times in the past year. In these cases there was no hereditary disease and no pathological condition of the umbilicus. The symptoms presented were restlessness, abdominal pain, tympanites, distension of the veins of the abdominal wall, irregular bowels, and tendency to collapse. All the cases resulted fatally: in two there was acute inflammation with fibrinous exudate, in the third there was suppuration with metastatic abscesses; in two there was inflammation of the colon, in the third there was digestive disturbance several days before the peritonitis appeared. The question of changing the nurse or the artificial food should be seriously considered whenever peritonitis is impending.

URINE.

The study of the urine of the newborn has rarely been made. Mensi⁵⁸⁹_{Nov. 2, '92} has made extensive investigations in this field, and gives the following conclusions: In healthy infants, varying in age from a few minutes to a few days, (1) the urine is usually acid in its reaction; (2) albuminuria is an almost constant condition; (3) the quantity of albumen varies from 0.1 to 0.3 per cent.; (4) from the fifth to the tenth day there is scarcely a trace of albumen; (5) glycosuria may be present at birth, or a few days after birth.

RESPIRATORY APPARATUS.

The restoration of asphyxiated newborn infants is a subject which has called out much ingenuity in devising methods; of these, Sylvester's and Schultze's are most favorably known. Maas,

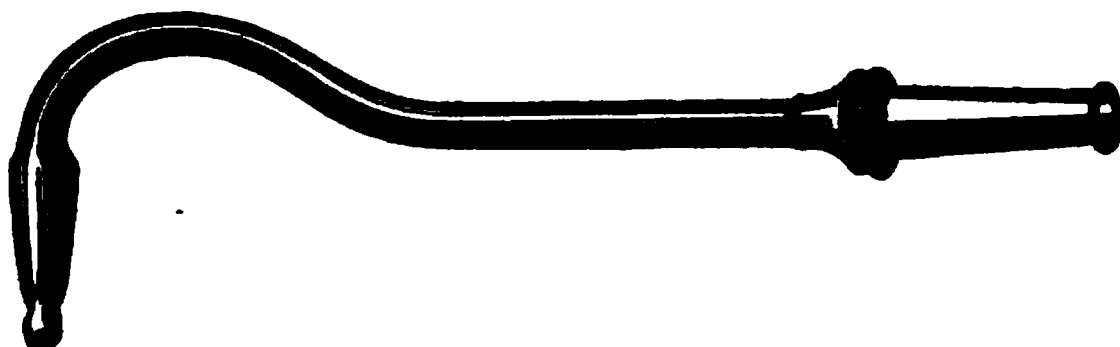
of König's clinic, has recommended rapid rhythmical compression of the thorax over the heart-region in cases of chloroform asphyxia, and its results have been so good that Winter believed it would also be of service in the resuscitation of the asphyxiated newborn. This recommendation was adopted by Latzko,¹¹³_{v.34, No. 23} who reports four cases in which he used it with success. The *rationale* of this method of treatment rests upon the fact that the object of the exchange of gases in the lung—namely, the regeneration of the respiratory centre by the action of oxygen upon the medulla oblongata—is not accomplished if it do not succeed in stimulating the circulation of the blood, which is the oxygen-carrier, while simultaneously arousing the depressed heart-action. The rapid compression movements advised by Maas stimulate the weak heart to increased action, and so tend to relieve the entire series of troubles in the circulation. Oehlschlaeger⁵⁷_{Aug. 18} has made use of this method of thorax compression, and recommends that the number of rhythmical movements be about one hundred and twenty per minute,—that is, at least as many as the number of heart pulsations per minute would be. Amende⁵⁹_{Aug. 19} recommends the method of tongue-traction in asphyxia neonatorum. He suggests that the infant be placed upon its side or abdomen, the thumb of the left hand of the operator resting under the chin, the index finger upon the root of the tongue, while the right hand is placed upon the chest. The tongue and chin are then drawn forward, the chest being alternately compressed. This action tends to release the epiglottis and the air will have free access to the lungs. Laborde¹⁴_{Jan. 4} has brought the subject of tongue-traction for the asphyxiated into prominence in France. He seizes the tongue with forceps and combines rhythmical tractions with artificial respiration. The method is also advocated for other spasmodic affections of the glottis, for asthma, and for laryngo-bronchitis. Péronne¹⁵⁷_{July} reports three cases in which rhythmical traction of the tongue alone sufficed to establish respiration. De Minicis⁵⁰⁵_{v.14, No. 9} has had success by the same method. A number of other communications, especially from French sources, testify to the value of the method of tongue-traction.

Dew⁵⁹_{Mar. 11} advocates a method of resuscitation which he says he has practiced successfully many years. The following is his description: Grasp the infant with the left hand, allowing the neck

to rest between the thumb and forefinger (Fig. 1), the head falling far backward, straightening the mouth with the larynx and trachea, thus raising and holding open the epiglottis. The upper portion of the back and scapulæ will rest in the palm of the hand, the other three fingers being inserted in the left axilla, raising it upward and outward. Next, the knees should be so grasped (Fig. 2) that the right one will rest between the thumb and forefinger, the left between the fore and middle fingers. The back of the thighs will rest in the palm of the operator's hand. If the infant is very small it may be held by the ankles. Next, the pelvis and lower extremities are depressed (Fig. 3), allowing the diaphragm to be dragged downward, while the left hand gently bends the dorsal region of the spine backward. This enlarges the thoracic cavity and produces inspiration. To excite expiration the movement should be reversed, the head, shoulders, and chest being brought forward, and the ribs closed upon each other. At the same moment the thighs should be brought forward and rested upon the abdomen (Fig. 4). This arches the lumbar region backward and crowds together the contents of the thoracic and abdominal cavities. The following advantages are claimed for this method: 1. It is most efficient in all cases in which artificial respiration in asphyxia

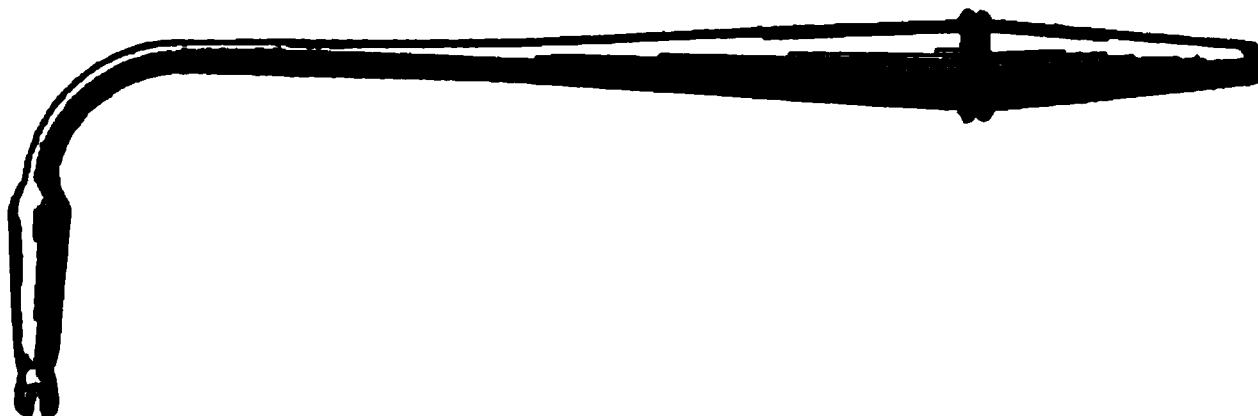
METHOD OF RESUSCITATION. (DEW.)
Medical Record.

neonatorum is indicated. 2. Years of experience have proved its value. 3. It can be practiced with ease and readiness. 4. The movements are easy and can be readily resorted to. 5. Its inspiratory movement is as efficient as that of other methods, and its expiratory movement is more satisfactory than any of them. 6. Nearly all the air drawn in can be expelled. 7. Owing to the force, as well as the absolute control which the operator



LARYNGEAL INSUFFLATOR. (RIBEMONT.)
Bull. et Mém. d. l. Soc. Obstét. et Gyn.

has over the expiratory movement, the contents of the thoracic cavity can be compressed to exactly the desired degree, thus favoring the general circulation. 8. The operator can sit down or move about while performing the movements. 9. The movements can be continued, if desired, while the infant is immersed in hot water. 10. By elevating the buttocks and depressing the head and shoulders, mucus can be expelled from the throat, as in the Schultze method. 11. It may be alternated with Sylvester's or

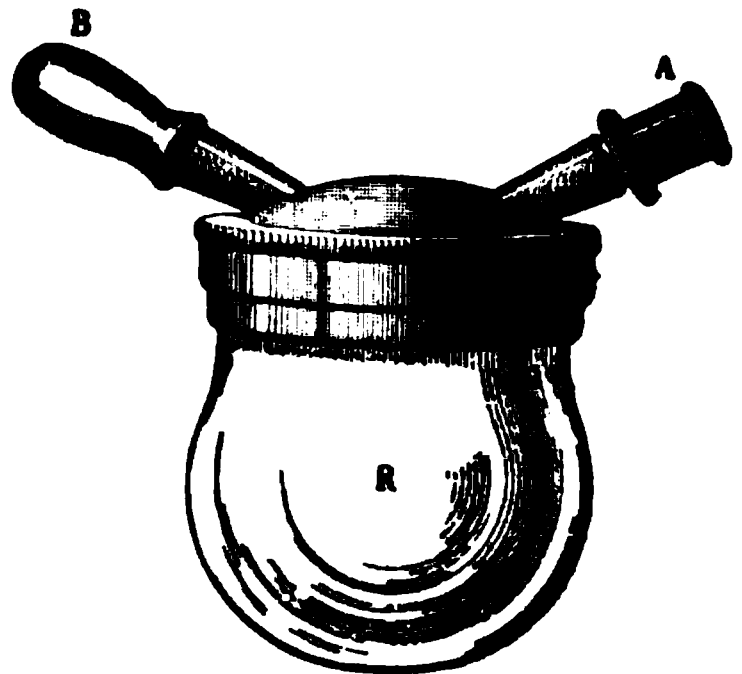


LARYNGEAL INSUFFLATOR. (OLLIVIER.)
Bull. et Mém. d. l. Soc. Obstét. et Gyn.

other methods. 12. It has all the advantages and none of the disadvantages of the Schultze method. 13. It is prompt, reliable, easy of execution, and safe. Forrest⁵⁹_{Mar. 25} objects to the claim of originality in the method advocated by Dew, asserting that it is similar to the methods advocated by Byrd and Schröder; also, that the experiments of Champney have shown its inefficiency, at least in many cases. In cases of pale or true asphyxia, he asserts that

the method is worse than useless, as it wastes valuable time in an unscientific and futile effort to introduce air into collapsed lungs. Budin ⁸ _{Dec. 22, '92} calls attention to the necessity of clearing the air-passages of all obstructing substances if we would be successful in resuscitating an asphyxiated infant. He considers two methods of treating the asphyxiated—the indirect and the direct. The first includes the well-known recommendations of Sylvester and Schultze; the second insufflation from mouth to mouth, insufflation with the tubes of Chaussier, or Depaul, insufflation with the tube of Ribemont. The latter he considers the best, as it enables one to dislodge any material which prevents the ingress of air into the pulmonary alveoli, this being a *sine qua non* to successful treatment.

Ollivier ¹⁹⁴ _{Dec. 7, '92} has devised an insufflator which he considers an improvement upon Ribemont's. The latter has advantages, and is better than any others which preceded it; but if the substances which are to be aspirated from the larynx and trachea are thick and viscid, it is ineffective. Besides, it is not always desirable for the operator to draw into his mouth the substances which are to be removed. Ollivier has also found it desirable to change the curve of the Ribemont tube, the better to accommodate it to the anatomical requirements of the larynx and trachea. A comparison of his modified instrument with the Ribemont instrument will show at a glance the points of difference. To prevent the aspiration of material into the operator's mouth, he has devised a glass reservoir with two tubes (*A* and *B*) attached. To the tube *A* is attached the instrument after it is adjusted to the air-passages of the infant. To the tube *B*, or mouth-piece, the operator applies his mouth, and as suction is employed the objectionable material is drawn into the glass receptacle. After the material has been removed and the reservoir made clean, insufflation is employed, the lungs of the infant are filled with air, and the air then allowed to pass out, in expiration, by the elastic force of the tissues.



RESERVOIR FOR INSUFFLATOR.
(OLLIVIER.)

Bull. et Mém. d. l. Soc. Obstét. et Gyn.

Kehrer³⁹¹_{v.37, No.4} determined, by an experiment which one would not care to repeat, the exact location of the respiratory centre in human beings. A craniotomy had been performed in the usual manner. After the child had been extracted, cardiac and respiratory action persisted, and mechanical irritation also induced active movements of the extremities. The cerebral hemispheres and the cerebellum had been destroyed, but the medulla and the spinal cord were intact. A vertical section was made through the medulla, at the middle of the calamus scriptorius, respiration continuing; but it ceased entirely when the medulla was divided at the lowest point of the calamus scriptorius. This proved that the respiratory centre in man is located just exactly as in other mammals.

Berggrün²⁸⁵_{v.7, No.4} has made a series of investigations with reference to the vexed question of broncho-spasm in the newborn. Its intimate relation to bronchial asthma, so long a matter of doubt, seems to have been demonstrated by Beer, and Berggrün's experiments upon the newborn now confirm Beer's conclusions, which were reached after experiments on young animals. Interference with respiration caused by broncho-spasm may be so great as to prevent altogether the access of air. It would now appear settled that broncho-spasm is not a very rare occurrence in children, and that many a case must be referred to this category which has heretofore been classified as laryngo-spasm. It would also seem possible that the peculiar conditions of respiration observed in rachitis with craniotabes depend more or less upon broncho-spasm arising from irritation of the vagus.

The importance of a more-general appreciation of the physiology of the respiratory and circulatory changes in connection with asphyxia neonatorum is well put by Long.⁴⁵¹_{Dec., '78} The changes at such a time comprise three groups: 1. Expansion of the lungs and establishment of independent respiration. 2. Changes in heart-structures with alterations of the blood-currents. 3. Closure of the blood-vessels peculiar to the foetal circulation. Other changes occur secondarily, but have no positive relation to the asphyxia present at birth. The *rationale* of these changes being apprehended, a more-intelligent notion of the means for exciting respiratory movements will necessarily obtain. The means which are available are (1) cutaneous impressions to stimulate the respiratory

centre through the cutaneous sensory nerves; (2) artificial respiration; (3) insufflation.

Geffrier¹¹⁸_{Nov., '92} calls attention to the subject of bronchial adenopathy in the newborn, a subject which has recently been exhaustively treated by Jules Simon. The latter has emphasized the significance of engorgement of the bronchial glands in children which produce secondarily almost all the intense broncho-pulmonary irritations, including whooping-cough, rubeola, and diphtheria, and may also be primarily the cause of great disturbance, both in their acute and chronic conditions. Cough is one of the most constant symptoms due to this condition, but it is seldom accompanied by expectoration or dyspnoea. Auscultation and percussion will be of service in determining the presence of these enlarged glands. The condition in question may exist at birth. It may be suggested at the infant's first cry, or not until a few hours or days have passed. Respiration is harsh, inspiration especially being rough. This may disappear during sleep and when the infant is quiet. The cough may come in paroxysms, suffocation appearing imminent. In spite of these occasional severe symptoms the general condition of the patient does not seem to suffer. Five cases have been seen by the author, all of which terminated in recovery.

INFECTION AND INFECTIOUS DISEASES.

The subject of infection in the newborn is receiving more and more attention. The susceptibility of the individual at that period of life, and the ever-present avenue through which infection may take place, namely, the umbilical wound, if that be left unguarded, warrant careful attention and investigation. Tavel and Quervain⁹_{Dec. 10, '92} report cases bearing upon this subject. One was a premature male child in whom infection of the umbilicus was apparent a few days after birth. On the tenth day there were multiple hæmorrhages beneath the skin, with rigidity of the skin of the lower extremities. Death occurred on the thirteenth day. The post-mortem showed detachment of the epidermis in places, a small quantity of pus at the umbilicus, bloody fluid in the pleural cavities, double hæmorrhagic pneumonia, hæmorrhage of the mucous membrane of the stomach and intestines and of the parenchyma of the kidneys. Streptococci and staphylococci were found

in the blood. In another case pneumonia was apparent on the tenth day, and death occurred on the twelfth. The post-mortem showed hæmorrhage beneath the epicardium, beneath the dura mater, into the pia mater, the cerebrum, and the ventricles. Staphylococci aurei were found in the blood and in sections of lung-tissue. It was believed that infection could have occurred in these cases only by way of the umbilicus.

Infection from whitlow occurred in a case reported by Toujan.⁴⁸ The child was the fourth one of a woman 28 years of age, was a large and healthy female, and the labor was normal. The mother was suffering from whitlow at the time of confinement, but the condition was improving. The affected finger was dressed every two hours, and the umbilicus of the infant was carefully dressed even after the stump dropped. The mother was advised to abstain from dressing the umbilical stump, but she did not heed the advice, neglected her injured finger, and the consequence to her was an extension of the inflammation. On the eighteenth day the child became feverish and refused the breast. An erythematous rash covered the hypogastrium, the labia, perineum, and anus, and the temperature became elevated. Antiseptic dressings were used, but on the following day there was enlargement of the lymphatics of the thighs and vulva. The disease extended and death occurred on the twenty-second day. It was believed that staphylococci aurei from the mother's whitlow were absorbed by the lymphatics of the excoriated integument of the infant's nates.

Scarlatina in the newborn is of comparatively rare occurrence, some writers believing that it does not occur. Murchison, however, records 1483 cases of the disease in children under 1 year of age, 6.7 per cent. of which were fatal, and it is probable that in this large number of children some of the newborn were included. McManus⁵⁹ has reported two cases which he thinks were true scarlet fever. The first was that of a female child, born a few days prematurely, who was well until the eighth day, when it was wrapped in a shawl brought from a house in which were two children sick with scarlatina. Six days later a brother of the baby, 4½ years old, presented symptoms of scarlet fever. Attention being called to the infant, now 14 days old, the skin was found to be desquamating from scarlet fever, and the mother was able to

recall the fact that the child had been restless and feverish, and that a rash upon the skin had appeared two days after it had been wrapped in the shawl from the infected house. In the second case, also that of a female, a red rash appeared on the second day of life, and desquamation on the seventh. There was only slight fever. Two other children belonging to the same family had been sent away prior to the birth of the baby. They returned home in the second week of the baby's life; one became sick with scarlatina on the second day subsequently, and the other on the third, the latter case proving fatal. It was believed that the infant received the disease from its mother, the source of infection in her case not being traceable. That the disease was scarlatina in both these cases seems to be decided by the results of exposure of the other children in the respective families.

MISCELLANEOUS.

Most obstetricians are familiar with the surgical injuries of the newborn,—some of them unpleasantly. Lovett⁹⁹_{Mar. 20} read a paper before the Boston Obstetrical Society, in which he referred to some of these injuries and their consequences. Fracture of the skull and cerebral hæmorrhage are not infrequently succeeded by spastic paralysis and idiocy. Asphyxia at birth is often followed by idiocy. Hæmatoma of the sterno-mastoid muscle often causes wryneck. Fractures of the long bones are quite common, and are sometimes followed by very bad deformities. Discussion of the paper brought out the fact that, with most of the members of this society, fractures sustained during delivery left no deformity. This fact may be accounted for by the care and skill of the accoucheurs as well as by the readiness with which wounds upon the newborn heal, when not too severe, and when the children are suffering from no constitutional vice.

Meyer⁴¹⁰_{Jul.} calls attention to the fact that for a few hours just after birth the pneumogastric nerve has the power of arresting or of slowing the heart's action when the nerve is artificially irritated. Excitation of the central end produces slowing of the heart like the excitation of the respiratory passages by caustic vapors.

An important practical question is suggested by Parsons⁶¹_{Dec. 24, '90} concerning the advisability of washing and scrubbing infants immediately after birth. He calls attention to the habit of animals

in drying their young immediately after birth, but this does not remove the protecting coat of hair which shields them from the effects of the low temperature to which they have been suddenly subjected after birth. The newborn infant is protected naturally by a coating of sebaceous material which, as it is a non-conductor, takes the place of the hair upon young animals. In place of the usual washing and scrubbing, so often followed by troubles of the respiratory apparatus, he suggests that the infant's body be anointed with pure hog's lard, and then wrapped in a warm blanket, nothing further in the way of cleansing being done for four or five days, by which time the infant will have become accustomed to the temperature to which it has been introduced. He has adopted such a plan in his own practice and finds that infants thus treated are quite exempt from the coryza and bronchitis which are so frequent when the precautions mentioned are not taken. In line with the foregoing is the observation of Saint Philippe¹⁸⁸_{Jan. 22} as to the great influence of cold upon newborn infants. Many infants suffer great lowering of the body-heat with rapidly fatal result, which could be avoided by suitable application of heat to the body. Œdema of the newborn from excessive chilling of the surface is one of the phenomena frequently observed.

The changes in the body-temperature during the first few weeks of life have been studied by Feis⁹⁵_{v. 42, No. 3} upon the persons of twenty-five infants, the temperature being taken in the rectum every hour or every two hours from six in the morning until eight in the evening. It was found that the foetus has the power of generating heat independently, and that at birth its temperature is higher than that of the mother. Shortly after birth the temperature of the infant drops, and within six hours the minimum is reached. The cause of this fall is the deficient heat-producing power of the newborn infant. After thirty-six hours the temperature has risen again so that it may have reached 37° C. (98.6° F.). From the third to the fifth day the temperature varies, now being high and again low, while from the sixth to the eighth day it may be reasonably high, but this elevation is not to be regarded as the universal rule. The height of the temperature will, of course, be influenced by the quantity of nourishment taken by the child and by the gain or loss in weight. Feis found that the average variation in temperature during the first eight days of life

was 1.01° C. (1.82° F.) for mature infants, and 1.22° C. (2.23° F.) for the premature.

Mourlot ²¹²_{Dec. 12, '92} has studied the variations in weight in the newborn, nourished by their mothers, during the first ten days of life. For the first two or three days there is an average loss of 150 to 200 grammes ($4\frac{1}{2}$ to $6\frac{1}{2}$ ounces) in weight, the loss being much greater on the first than on the two succeeding days. After the third day there is a gain in weight, and by the fifth day the infant is usually as heavy as at birth. Large infants regain their initial weight less readily than small ones. The increase in weight at the tenth day varies, being greater with those in whom the initial weight was the more quickly regained. The gain with healthy infants, after the fifth day, will usually average 20 to 30 grammes (5 to 8 drachms) daily. With children born at eight and a half months the conditions vary. They usually lose weight for two days, to the extent of 200 grammes ($6\frac{1}{2}$ ounces) or more. By the sixth day they usually regain their initial weight. The majority of infants born at the eighth month lose more than 200 grammes ($6\frac{1}{2}$ ounces) during the first three days. Rarely do they recover their initial weight by the end of the tenth day. With infants born at seven and a half months the loss of weight continues more than three days, and most of them do not regain their initial weight by the end of ten days. Infants born at the seventh month lose weight for four days and never regain their initial weight by the end of ten days. Girls lose less weight than boys, the former averaging a loss of 150 to 200 grammes ($4\frac{1}{2}$ to $6\frac{1}{2}$ ounces), the latter more than 200 grammes ($6\frac{1}{2}$ ounces). Girls usually regain their initial weight by the fifth day, boys not until the seventh. The children of multiparæ lose less weight than those of primiparæ; for the former the average loss is 150 to 200 grammes ($4\frac{1}{2}$ to $6\frac{1}{2}$ ounces), for the latter more than 200 grammes ($6\frac{1}{2}$ ounces). The former regain their initial weight by the fifth, the latter by the seventh day. The children of women who suffer with albuminuria lose an average of 100 to 200 grammes ($4\frac{1}{2}$ to $6\frac{1}{2}$ ounces), some of them more. Increase in weight with such children is less rapid than with those born of healthy mothers. The increase in weight with such children is irregular; after an increase there may be a stationary condition or a period of loss. At the tenth day, in many cases, the weight is less than at birth.

The temperature during acute disease of infants born prematurely has been studied by Berti.⁸⁶⁸_{Aug. 5} His conclusions accord with those of Eröss, that not all premature infants show a subnormal temperature, this being contrary to general belief (*vide* the foregoing statements in this article). The cases which he studied were of infants born at different seasons of the year, some of them subjected to couveuse treatment and some not, and suffering with various diseases in which fever was an element. In these cases the same elevations of temperature were recognized which would commonly be expected in infants born at term,—that is, in infants who were not premature. This being recognized as a fact, he thinks it might be warrantable to reason from the pathological to the normal condition, and that, if the temperature in febrile conditions in the premature follow the same course as in those born at term, it must follow a similar course in conditions which are not febrile.

Eröss⁹⁵_{No. 2} made an elaborate series of investigations, with reference to the conditions of disease in the newborn, upon 1000 infants at the Budapest Obstetric Clinic. He regarded all those infants as sick in whom the thermometer showed a temperature of more than 38° C. (100.4° F.), even if this elevation continued only a few hours. In 431 a febrile temperature was observed, though in 145 it continued only a few hours. Febrile temperature from unknown causes was present in 79 cases, though in 13 of them there was a temperature from 38° to 39° C. (100.4° to 102.2° F.) for a few hours after the umbilical-cord stump fell; in 11 others of this group the temperature was about 39° C. (102.2° F.) immediately after birth or within the first few days, though the mothers in these 11 cases were neither febrile during labor nor during the puerperium. The temperature in these 11 cases varied between 38° and 39° C. (100.4° to 102.2° F.) for several days. In 220 cases fever was attributable to the process of decomposition which involved the stump of the cord. With a larger number than that last mentioned fever was attributed to disturbance in the digestive organs. In 108 there was fever with dyspepsia or intestinal catarrh. The total number of cases with dyspepsia was 365; with intestinal catarrh, 200. The dyspepsia began, in most cases, between the third and fifth days. Digestive disorders were observed with especial frequency in those infants which were nourished exclusively at the breast. A noteworthy result of this disease

was loss of body-weight, the average weight on the eighth day being 106 grammes ($3\frac{1}{2}$ ounces) less than the weight at birth. The majority of the cases of intestinal catarrh also began from the third to the fifth day. In 178 cases of this disease the chief symptom was copious and frequent serous stools with partly-digested and partly-undigested material. In such cases the average loss of weight at the ninth day was 254 grammes ($8\frac{1}{8}$ ounces). In 22 cases the stools were offensive, dark brown, and of the consistency of soup or glue. The temperature in the latter cases ranged from 39° to 40° C. (102.2° to 104° F.), and the average loss of weight was 494 grammes (1 pound). The greater number of cases of disease of the digestive organs occurred in November and December, not in the summer months. In 66 cases there was thrush, and preventive mouth-washings had been employed in a majority of this number. In 19 cases there was disease of the respiratory organs, in 20 hæmorrhage and the hæmorrhagic diathesis. In 317 cases there was icterus, usually of the simple form, rarely as a symptom of a general infection, proceeding from the navel. The author wishes it to be understood that this great morbidity must not be regarded as a peculiarity of the Budapest clinic, but as evidence of the fact that these 1000 cases were very closely studied. The mortality was 31 per cent. A most excellent example has thus been furnished of patient study and the acquisition of facts which, to most physicians, are quite new.

The investigation made by Eröss⁸⁶⁶_{Jan. 19} was fruitful in turning his attention to the subject of mortality in the newborn, and he discovered that nearly 10 per cent. of all children who are born alive die within the first four weeks of life. This statement was obtained by a comparison of the vital statistics of sixteen of the most important cities of Europe. The mortality was greatest during the first day of life. During this period of four weeks, more than a third of all the deaths of the first year of life occur, and nearly a fourth of those during the first five years of life. The factor most significant in causing this high infantile mortality was congenital weakness, but this varied in different cities within wide limits. Thus, while in Naples it was responsible for 0.95 per cent. of the living born, in Prague, at the other extreme, it was responsible for 10.7 per cent. In general, it was concluded that, of every 100 living-born children, 4 to 5 die on account of their

undeveloped condition, their inability to sustain life. Of all who die during the first four weeks of life, more than half die from congenital weakness.

Bodenhamer¹ has written a very interesting paper upon the liability of the foetus *in utero* to the various diseases of post-natal life. The subject is little understood, and but one work, that of Madge, has been written on it in the past forty years. The reasonable proposition is advanced at the outset that children may be born sick, convalescing, or recovered from precedent illness; the embryo is liable to intra-uterine disease as well as to arrest of development. The diseases of foetal life are classified as (1) those which are derived from the parents, (2) those which originate in and are peculiar to the foetus and its membranes as a real organized entity, and (3) those which arise from or are the result of accidents or other causes. Of the first class it is generally admitted that some diseases, peculiar to both parents, are transferable to the foetus, the method being yet under discussion. A father who is tuberculous, syphilitic, scrofulous, or a drunkard, is unlikely to beget healthy offspring. If the mother is diseased the foetus, as a rule, cannot go unscathed, and the maternal disorder may be acute or chronic. The diet of the mother during gestation and the condition of her general nutrition are said by some writers to have no particular bearing upon the nutrition of the foetus. Within certain limits that may be true, but it is manifestly not true as a principle. If a woman underwent starvation during gestation and died during labor, it would be incredible that her offspring, if living, could be in good physical condition. In the second class of diseases it is quite possible that the foetus may be affected independently of the mother. A foetus may sicken and die of Asiatic cholera while its mother presents no evidence of the disease; mother and foetus may have malarial fever simultaneously and yet of different types, or the foetus may have malarial fever, contracted apparently from the father, the mother being free from the disease. That accidents or injuries of the mother may affect the foetus requires no further enunciation. The diagnosis of disease of the foetus is beset with difficulties, is often impossible, but is sometimes possible by palpation, percussion, and auscultation, as in post-foetal life. The treatment is, of course, limited to the mother as a medium, but, nevertheless, often results in recovery of the patient.

The use of the incubator, or couveuse, for the care of premature infants has not been as common in this country as in France, where the devices of Tarnier and others are in frequent requisition. Rotch⁵¹ has invented an instrument which he thinks possesses new and useful features. The requirements of such an apparatus are: (1) it must admit of thorough cleansing and disinfection; (2) it must be readily portable; (3) ventilation must be thorough and automatic; (4) the external air must be modified before it is admitted to it; (5) the temperature must be readily adjusted to any desired point; (6) the air should be pure; (7) it should be possible to increase at will the proportion of oxygen in the air admitted, remembering that pulmonary atelectasis is very common in premature infants; (8) the incubator should offer facilities for readily weighing the infant. All these requirements have been satisfied in the incubator which Rotch has devised, which is here reproduced in diagram and in section.

CLAMP FOR HEATING FLUIDS.
A CHIMNEY.
A RETURN FLUE FROM HEATING FLUIDS

A. AIR-INTAKE VALVE.
B. VENTILATING FLUE.
C. ANEMOMETER.

WFLX

INCUBATOR FOR PREMATURE INFANTS. (ROTCH.)
Archives of Pediatrics.

An important subject, too often overlooked, concerns the proper method of making autopsies on the newborn. Cattell²³ offers some remarks on the subject which may be found very useful for reference. In the external examination one should look for signs of inflammation of the umbilical cord, ophthalmia, hæmatoma, dis-

locations and fractures, unusual conditions of the fontanelles, mastitis, hernia, spina bifida, pemphigus, thrush, icterus, cyanosis, hare-lip, cleft palate, tongue-tie, polydactylism, monstrosities, abnormal openings, imperforate anus and rectum, etc. The average height of a full-term child, in good general condition, is fifty to fifty-one centimetres, the male being slightly longer than the female. The weight of a full-term boy at birth is 3600 grammes (7 pounds), of a girl 3250 grammes (6½ pounds). The testicles should be in the scrotum, and the labia majora should cover the clitoris and nymphæ. The incision into the body should go to the left of the umbilicus, avoiding the umbilical vessels. The latter should be carefully examined, especially the hypogastric arteries, for bacterial disease. The liver normally represents 4.39 per cent. of the entire weight of the body, and the brain 14.34 per cent., the muscles only 23.4 per cent. The body should be eviscerated, the incision extending to the symphysis mentis, and all the organs, from the tongue to the rectum, removed. Especial attention should be given to the thymus gland, lying between the apices of the lungs, one and a half inches long and seven-eighths of an inch wide. Inspection of the heart should inform one whether the foramen ovale and ductus arteriosus are patulous. The centre of the head of the femur should be cut through to determine the presence of syphilitic osteochondritis. The brain should be removed with great care, and preliminary hardening, by placing the body on ice for a few hours, may be necessary, and, in addition, it may be desirable to immerse the body in a salt solution and remove the brain under the surface, the brain floating as it passes into the salt solution on account of its higher specific gravity.

DIETETICS OF INFANCY AND CHILDHOOD; INFANTILE DISORDERS.

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ARTIFICIAL FEEDING.

THE problem of proper infant-feeding grows more important each year, because, as Laurent²⁰⁸_{Jan. 15} states, the aptitude of maternal nourishment diminishes more and more, the number of women who try to shirk this duty tends to increase, and artificial feeding presents progressive difficulties springing from the child's idiosyncrasies.

Artificial Foods.—Edson¹⁸⁴_{Feb.} states that sterilized cows' milk may carry disease germs, particularly tuberculosis. Cooke¹⁴⁴_{Oct., '90} calls attention to a point that should never be forgotten, in connection with infantile disorders, *i.e.*, that the milk be supplied from a healthy herd, and not "from one cow." He recommends the following formula: Boiled water (cooled), 3 ounces (93 grammes); cream, 2 ounces (62 grammes); milk, 1 ounce (31 grammes); milk-sugar, $3\frac{1}{2}$ drachms (14 grammes). This mixture should be placed in an open bottle and the latter set in a kettle of boiling water, deep enough to allow the water to come up above the milk in the bottle. It should then remain in the boiling water for twenty minutes, removed, and 2 ounces (62 grammes) of lime-water added, corked at once with absorbent cotton and kept in a cool place. One ounce (31 grammes) of the mixture for each month of the child's age should be given at every meal.

Brooks²_{Apr. 29} suggests the following: A pint or a pint and a half ($\frac{1}{2}$ to $\frac{3}{4}$ litre) of skim-milk is to be curdled every morning with rennet, the curd broken up, and the vessel put on a hot stove to draw out the whey, which is strained off and a mixture made of 2 ounces (62 grammes) of water to 1 ounce (31 grammes) of whey, and 2 to 3 drachms (8 to 12 grammes) of cream, with sugar of

(K-1)

milk. Farinaceous foods are contra-indicated, as they are apt to produce skin affections.

Leeds²⁵¹_{Mar.} calls attention to the fact, so often overlooked, that, although milk is rendered practically free from bacteria by sterilization, it is not modified in any way that peculiarly adapts it to infant nutrition. He recommends "humanized sterilized food," and prefers Pasteurization to sterilization.

Sterilized and Condensed Milk.—Laurent²⁰³_{Jan. 15} advocates non-boiled milk, and, while admitting that transmission of disease through certain milks must not be disdained, considers that the dangers have been greatly exaggerated. Boiled milk has much less nutritive value than raw milk, the scum produced by boiling containing much that is of value in nutrition; boiling renders casein insoluble and hard to digest. In the absence of maternal feeding, which, of course, is to be desired, the graduated dilution of cows' milk constitutes the best substitute. He is opposed to the various commercial preparations. In his experience, condensed milk is apt to produce the following conditions: gastro-intestinal irritation, vomiting, green diarrhoea, emaciation, and even enteritis; all of which, he states, disappear when cows' milk is given.

Verrier¹⁵²_{Oct. 7, '92} quotes Chéron as saying that in artificial feeding cows' milk may be dangerous, (1) through the food given to the animal; (2) by the substances which are added to it; (3) by infection springing from a diseased cow; (4) by secondary infection. Hence the advisability of giving the mixed milk from the entire dairy, and not one cow's milk.

Budin and Chavanne,²⁹⁰_{Aug. 22} in an article on "Artificial Feeding by Milk Sterilized at 100° C. (212° F.)," state that in 49 children so nourished during the heat of a Paris summer, only two died, and these from diseases independent of the alimentary apparatus. These writers do not dilute milk, but give it pure. They give an analysis showing that 500 grammes (1 pint) of cows' milk diluted in the usual way give a dry residue of only 45 grammes (1½ ounces), whereas 500 grammes (1 pint) of mothers' milk give 61 grammes (2 ounces). Milk heated to 100° C. (212° F.) modifies the molecular state of the casein and renders the coagula like a thick liquid.

Vigier²⁴_{Feb. 10} highly recommends good cows' milk in which the proportion of casein over and above that of woman's milk has been

removed by the ordinary process of making cheese, at the same time leaving all the other elements, butter, lactose, and mineral salts, in the milk. He sterilizes by the method of Geneste and Herscher, and obtains the best results by a temperature of 118°C . (245°F .); higher than this it becomes colored and the taste unpleasant. Children accept this milk with avidity; 250 infants were nourished on it entirely, without a single bad result.

Blatin, ⁶⁷_{Mar. 20} in a paper on good and bad nursing-bottles, aptly remarks that the best bottle is the breast of the mother; he considers that to bad bottles is due, for the most part, the enormous mortality of infants. It is this mortality which causes the French population to remain stationary or even to decrease; indeed, the French Academy of Medicine has stated that all bottles that cannot be very easily cleaned, and in particular those with a tube, are veritable instruments of infanticide; it is these that kill most of



FIG. 1.—RUBBER CAP AND OUTLINE OF SAME. (BUDIN.)
Le Progrès Médical.

the nursing children. Fauvel collected the bottles with a tube from all the day nurseries of Paris, and shows that all, without exception, contained germs of cholera infantum or infectious diarrhoea.

The bottle suggested by Budin, says Blatin, is the only correct one; it consists of a bottle with two openings opposite each other, and with an absolutely smooth interior, without corners; one of the openings is covered with an excellent air-valve which renders all effort of suction unnecessary; the other is covered with a nipple, the form and consistency of which have been well thought out.

Chavanne, ¹⁰⁰_{Aug. 20} in a carefully-prepared paper, states that the breast is the only natural method, but, as this cannot always be used, he advises milk sterilized by Soxhlet's process, the advantages of which are its easy digestion and the freedom from contamination obtained by giving the milk directly from the sterilizer to the

child. In order to regulate the feeding, the child should be weighed daily at the same hour. Chavanne gives pure sterilized milk to premature children, and finds that they digest it well and thrive upon it. Budin has presented another careful paper⁷⁸ on milk-feeding. He condemns the sterilizing method of Escherich for two reasons: 1. The milk has to be taken out of the vessel in order to use it. 2. The cotton plug allows of the entrance of impure air. He again affirms his preference for the apparatus of Soxhlet, which he has modified as illustrated in the accompanying cut, the rubber cap acting in the same manner as Soxhlet's disc.

It contains a small aperture on each side, which allows the steam to escape, prevents the cork from being blown off, and does

FIG. 2.—SAME RUBBER CAP AFTER STERILIZATION. (BUDIN.)
Le Progrès Médical.

not interfere with the retraction of the disc when the vacuum is formed, as illustrated in Fig. 2.

Budin also uses Gentile's modification of Soxhlet's apparatus, in which a smooth rubber disc is used, whose under side is shaped as a quadrangular pyramid (Fig. 3).

The obturator or rubber disc is maintained in position by a metal clip having two straight stems, curved at the extremities, for the introduction of a piece of twine, by which the cap may be held in position (Fig. 4), if the milk is to be carried about.

Villemin's method⁸⁸ of sterilization is very simple. Eight or ten small bottles, enough for the day's feeding, are procured, the contents of one bottle to be used at each meal. These bottles, partly filled with milk, are placed, uncorked, in an ordinary saucepan propped up with pebbles and surrounded with boiling water, in

which they remain for forty minutes. In the mean time the corks are boiling in the same water. When sterilization is completed, the bottles are corked with the sterile corks and put in a cool place.

FIG. 3.—RUBBER OBTURATOR SHOWING A CENTRAL DEPRESSION AFTER STERILIZING PROCESS, AND DUE TO RESULTING VACUUM. (BUDIN.)
Le Progrès Médical.

When needed, the bottle is to be warmed, the cork removed, a plain rubber nipple adjusted, and given at once to the child. Bottles and nipples are to be boiled daily. The reviewer unqualifiedly indorses this method. It is the one that he has used with the richer classes as well as the poorer, to whom Villemin thinks it



FIG. 4.—METALLIC ARMATURE HOLDING THE OBTURATOR IN SITU. (BUDIN.)
Le Progrès Médical.

particularly adapted. It is more apt to be faithfully carried out than methods requiring elaborate technique and close attention to detail. Budin and Chavanne, in a joint paper on the milk-feeding

of the newborn, ⁷⁸_{p. 20} lay additional stress upon the necessity of weighing the child daily, in order to determine if the nutriment supplied is sufficient in quantity and quality. These writers have used a weight-chart in La Charité Hospital, which is here reproduced, and in which the influence of nutrition may be accurately estimated.

Nencki and Zawadzki, ¹²⁶_{July 15} two Russian observers, suggest that the greatest care be used in milking. The cows are to be milked in special apartments, rigorously clean. The milker must be free

WEIGHT CHART. (BUDIN AND CHAYANNE.)
Le Progrès Médical.

from disease and his hands aseptic, the teats in the same condition, the milk received into sterilized pails and at once placed in the proper-sized bottles and sterilized by Escherich's method; the milk to be diluted and 4 per cent. of sugar of milk added before sterilization.

Koplik ¹_{p. 4} has prepared a very careful paper on the sterilization of milk at low temperature, and the equipment of milk laboratories for infant-feeding, well worthy of attentive perusal; and Hutchinson, ¹⁵⁷_{p. 78} from an extensive experience in the Brooklyn District Dispensary, says that the result of last summer's observations

was to confirm the belief that he has for some years held, that, with proper dilution and correct chemical modification according to the methods suggested by Arthur V. Meigs and improved by Rotch, cows' milk sterilized for forty minutes at a temperature of 212° F. (100° C.) is the very best material that can be employed for the artificial feeding of infants in the great majority of cases during the summer months.

Flamain advises, in the strongest terms, the use of concentrated milk, ²⁰³_{Feb. 16} and states that in seventeen years he has saved the lives of more than one hundred children by discontinuing cows' milk and replacing it by condensed milk.

Rodet ²¹¹_{Jan.} states that there are three general methods of the application of heat to the sterilization of milk: 1. Maximum heat, a temperature of 110° to 120° C. (230° to 248° F.), which gives complete sterilization and allows of the milk being kept indefinitely; it has, however, a disagreeable, greasy taste and is discolored. 2. Minimum heat, or Pasteurization, at a temperature of 75° to 80° C. (167° to 176° F.) for a few moments, suddenly lowered to 10° or 12° C. (50° to 54° F.). This heat destroys the ordinary germs, but not the ferment of casein. The milk can be kept for twenty-four hours in a low temperature. 3. Prolonged heat at a temperature of 100° C. (212° F.). This is considered the best method, the milk keeping for three weeks. Rodet uses a glass cap for the bottle during sterilization, like the cap on an alcohol-lamp, and similar to the Schmidt-Mulheim bottle; after sterilization cotton corks are used, in accordance with the methods of Eisenberg, Escherich, and Vinay.

An editorial writer ⁹_{Mar. 16} remarks that when the spores of the butyric-acid bacillus are present seven hours of continued boiling are necessary for their destruction. Pasteurization (*i.e.*, the heating of milk to a temperature of from 130° to 150° F.—54.4° to 65.6° C.—for ten minutes) only facilitates the germination of these microbes. Boiling destroys the solubility of the lime-salts, in the absence of which the child's stomach cannot digest the milk. According to the standard of Soxhlet, milk intended as food for children should contain the normal constituents; and after it has been heated in a steam-chest for three-quarters of an hour at 212° F. (100° C.), it should remain sterile in a temperature of 95° F. (35° C.) for one month. It is only possible to obtain such

milk when the methods of bacteriological laboratories are carried out at the dairy-farm. Milk should be received from the healthy cow in sterile glass jars, which, with their contents, are placed in steam-sterilizers, heated for ten or twenty minutes at 160° F. (71.1° C.), and transported directly to the consumer.

Chavanne³_{Dec. 23, '92} advises against the use of goats' milk, and speaks favorably of asses' milk. A careful *résumé* of all forms and methods of milk sterilization are given by the author, Gentile's apparatus being considered the best. Gautrelet²⁴_{May 7} disagrees with Weber, that it requires more sterilized milk than raw milk to produce an equal gain of weight in a given number of days, his own results showing a gain under sterilized milk. Saint Ynes Menard²⁴_{May 14} also states that Weber's experience cannot be considered conclusive, as it was based on an insufficient number of cases.

Kieffer⁸²_{Aug. 5} remarks that retention of milk in the gland makes it poor in solids, while milk recently secreted is rich in solids and correspondingly more difficult of digestion,—a fact too often disregarded in the management of babies suffering from digestive derangements. They are given the breast to quiet them, the result being that food difficult to digest is given them when the most easily digested food is indicated. When a cream is 18.66 per cent. fat, the following formula will produce a milk as an ideal food:—

R Milk,	℥ij	(62.00 grammes).
Cream,	℥iij	(93.00 grammes).
Sugar,	gr. xlv	(2.93 grammes).
Water,	℥x	(310 00 grammes).
Lime-water,	℥j	(31.00 grammes).—M.

Everhart, in a very carefully-prepared study of infant-foods and infant-feeding,⁶⁴⁵_{Nov., '92} gives an analysis of 13 popular commercial foods, and very aptly remarks that, in order that an infant obtain as much nourishment as is contained in 1 pint ($\frac{1}{2}$ litre) of woman's milk, it will be compelled to ingest from 2 to 5 pints of these foods, and in the case of one of them it would be necessary to take nearly 20 pints, or $2\frac{1}{2}$ gallons (10 litres).

Results of Bad Feeding During Infancy.—W. Arbuthnot Lane¹⁰⁷⁷_{July 19} thinks that, if it were not for the lamentable ignorance as to the proper manner of feeding, children's hospitals would have but little claim to exist. The too frequent suckling, or the use of

unsuitable foods, many of which are falsely advertised as suitable to young infants, produce indigestion, as evidenced by flatulence, restlessness, irritability, diarrhœa or constipation, perspiration during sleep, erythema, and eczema. The abdomen is distended with intestinal gas, which causes a yielding of the umbilical cicatrix and often umbilical hydrocele or hernia, a separation of the recti and protrusion of intestines, the formation of hydrocele or hernia in the inguinal region by forcible displacement of bowel or fluid along the vaginal process or the canal of Nuck; the inability to expand the lower part of the lungs and pulmonary congestion, owing to the action of the diaphragm being opposed by the considerable and abnormal abdominal tension; the development of bronchitis owing to the faulty expiration. All these are produced by faulty feeding.

The urine secreted is peculiarly irritating, causing intertrigo and inflammation at the end of the foreskin and eventually phimosis. The frequent association of phimosis with hernial protrusion has been erroneously considered as cause and effect; they are both the result of the same cause,—bad or improper feeding. In these children the cutaneous or mucous surfaces react most readily to any slight irritation. Lane doubts if a hernia is ever produced by the child straining to urinate through a minute preputial orifice.

As hernia or hydrocele in infants is almost always due to increased intra-abdominal tension resulting from indigestion, the latter must be corrected first and the truss become only an adjuvant. The author considers that trusses in infancy do more harm than good. Fortunately for the children, their more active life with increasing years frequently frees them from the constant feeding of their parents, and they “grow out” of their indigestion, rickets, hernias, and hydroceles; surgeons should pay more attention to these matters. Imperfect nutrition early makes itself obvious in the condition of the osseous system. Rapid formation of imperfect bone at the epiphyseal lines takes place, and the periosteum deposits a more or less decalcified spongy material. An apparently disproportionate amount of periosteal callus is placed upon the insecure, soft-bone skull-case, as in mollities ossium and in osteitis deformans. In rickets, if the child lie about much on hard boards or couch, absorption and craniotabes occur.

These ill-nourished children suffer from a want of firmness

of the cartilages and structures about the apertures of the larynx, from bronchitis, chronic nasal catarrh, and adenoids; the bony chest-wall yields under atmospheric pressure, assisted by the conditions just named. The transverse diameter of the chest is diminished and its antero-posterior measurement increased,—a condition commonly called pigeon-breast.

Another deformity is brought about by the mother placing the child in the sitting posture. In this attitude the heavy head causes the dorsal spine to be abruptly flexed on the lumbar segment, and after a time, owing to a change in the form of the bodies of the vertebræ and of the fibrous cartilages in and about

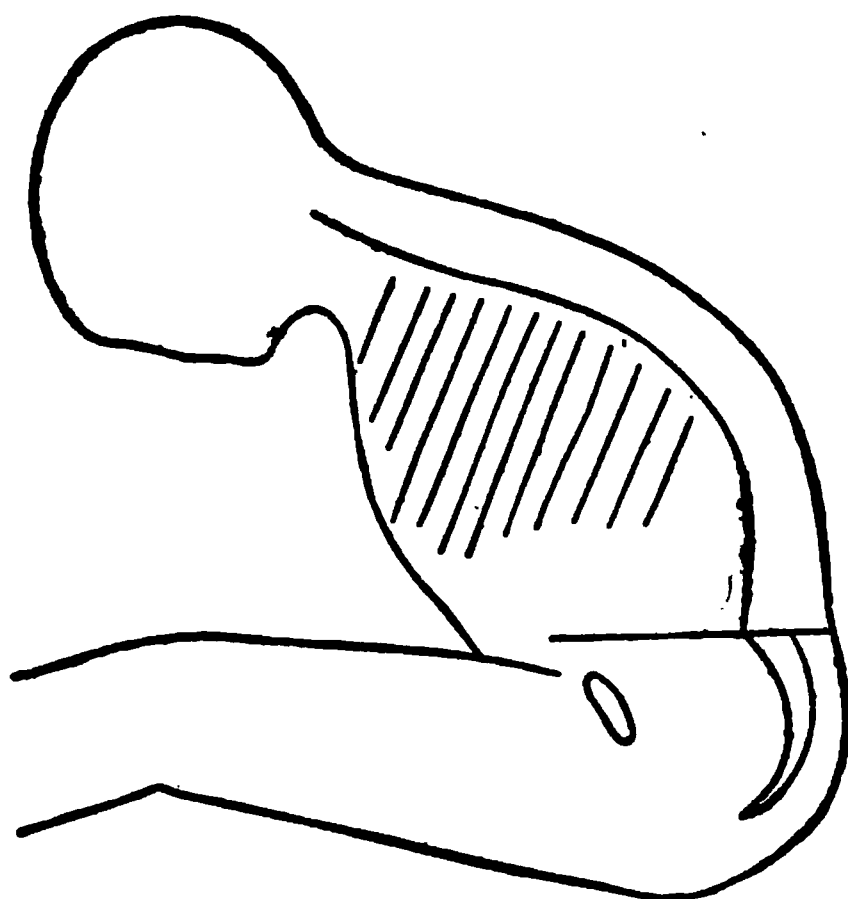


FIG. 1.—FAULTY POSTURE IN INFANTS. (LANE.)
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this point, the deformity becomes fixed, the terms “rickety spine,” “dorsal excurvation of infancy,” or “cat’s back” being applied to it; frequently it is mistaken for spinal caries. It is in this posture and at this period that Lane has shown that the diminution of the conjugate of the pelvic brim, so familiar to the obstetrician, is produced. When one assumes such a slouching, sedentary posture as do these lowly-vitalized, feeble-bodied, top-weighted children, the lumbo-sacral and sacro-iliac joints are in a position of extreme flexion, and, consequently, while the attitude is being persisted in, there exists a tendency to the forward and downward displacement of the promontory of the sacrum. This tendency becomes an actuality in these children, the softening of the bones allowing the

displacement to occur. Figs. 1 and 2 illustrate the mode of development of this deformity.

One thing we must bear in mind constantly, and that is that phimosi, the changes in the skeleton which are called rachitic, hernia, hydrocele, the deformed abdomen, and the many other conditions alluded to are simply the result of indigestion due to improper feeding.

BREAST-FEEDING.

Weaning.—Delobel,²³⁶_{Nov., '92} in a careful paper on complementary nourishment to nursing at the breast and the preparation for weaning, remarks that the latter must be carried out under two

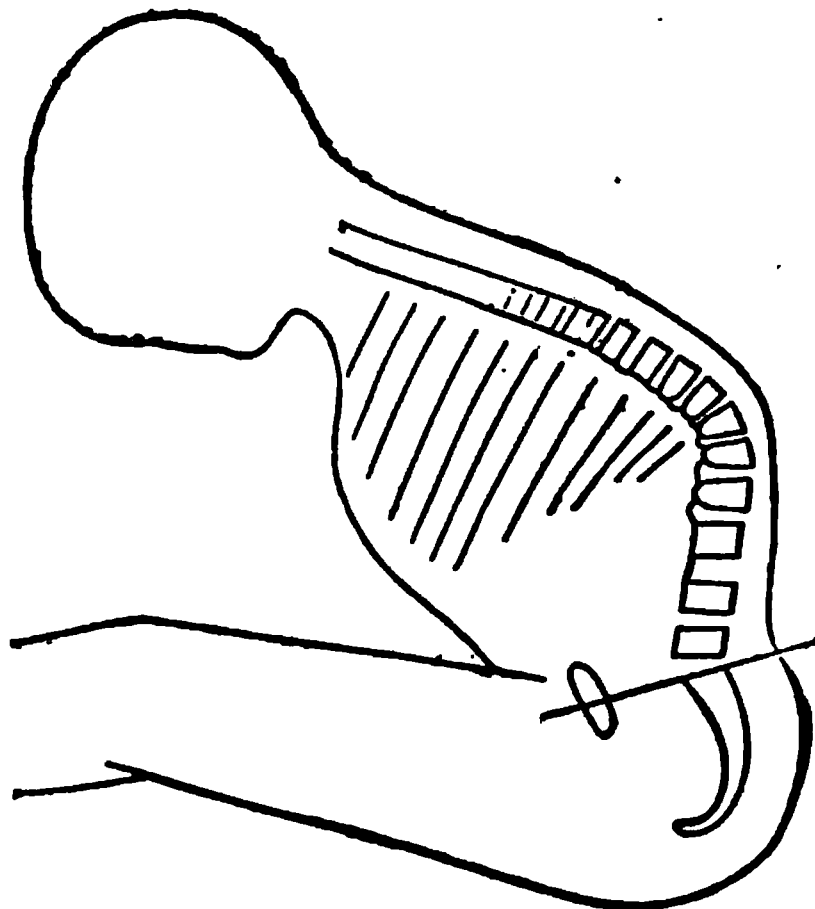


FIG. 2.—RESULT OF FAULTY POSTURE IN INFANTS. (LANE.)
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conditions: the child must be healthy, and not suffering from dentition. After six months the mother should replace one of the morning nursings by several spoonfuls of well-cooked pap made with a wheat-, barley-, or oatmeal- flour. In a few days one night nursing is suppressed, continuing gradually until, at the tenth month, there should be no night nursing at all; but three broths should be given, one in the morning, one at noon, and one in the evening. Up to twelve months the child should be nourished in the same way as at ten months. At one year it should receive meat-broths, bouillon, and milk; it may have a crust of dry bread, soaked, dipped in a little juice of meat or in the yolk of an egg slightly cooked, and occasionally a chicken- or chop- bone to

suck. At thirteen months it may receive a little juice of meat or chicken or a few mouthfuls of the white of chicken or of fish. At fourteen months it can have minced-meat, but no vegetables or fruit, and the same diet up to the seventeenth month, the nursing being reduced more and more until the breast-milk is given but twice in the twenty-four hours. At eighteen months it is taken from the breast of the mother. Up to two years it must be fed on milk, milk-soups, panades, and the like.

Taylor³⁹_{June} makes the following remarkable statement: "I wish I could believe that mothers' milk was the best food for the baby. When all is said and done, thoroughly careful hand-feeding is about the safest and most reliable."

Galactagogues.—Grinieitch¹⁰⁶⁹_{July} has shown that the most efficacious of the galactagogues are electricity, galega (goats' rue), stinging-nettle, anise, cummin, fennel (anethum); galega appears to be the most active of these agents, the others following it in the order in which they are named. The dangers of malt liquors as galactagogues are discussed by Byers,²³_{Oct., '72} who also cited some cases demonstrating the danger of poisoning the child through the mother's milk. Steinhaus⁹⁹⁶_{Nov. 10, '72} presented a very careful paper on the morphology of the secretion of milk.

Bacteriological Investigation of Woman's Milk.—Human milk generally contains germs. Honigmann,⁵⁸_{May '82} made 76 investigations of milk taken from 73 different breasts of 64 persons. In only 4 cases was there a complete sterility of the milk. In 2 cases the milk from one breast was sterile, while that from the other contained germs. The germs obtained from the milk of the normal lying-in woman were identical with the staphylococcus pyogenes aureus and albus, although by inoculation the same results were not produced; so that it is doubtful if the bacteria have a bad effect upon the child. Ringel³⁴_{July '84} concludes that in woman's milk the non-pathogenic staphylococcus (usually albus, rarely aureus) is always present. The streptococci usually reach the milk through infection from the genital track; they were found in the breasts and the heart-blood of women who died from puerperal fever.

The Effect, on Sucklings, of Purgatives Administered to the Mother.—Gow¹⁵_{Mar.} publishes the following conclusions on this subject: (1) sulphate of magnesium administered to the mother frequently causes looseness in the suckling child; and (2) senna,

cascara sagrada, and aloes rarely affect the child's bowels when administered to the mother.

INFANTILE DIARRHOEA.

Sansom ¹⁰⁷⁷_{Aug. 20} classifies diarrhoeas as follows: (1) athreptic diarrhoea, or the diarrhoea of malnutrition; (2) nervous diarrhoea; (3) verminous diarrhoea; (4) epidemic diarrhoea.

Alfred H. Carter ²⁸_{July} says that, in spite of the most careful researches, no constant micro-organism has been found, the comma bacillus not being present. Bearing in mind what has already been said, there seems to be no way of escaping the conclusion that the occurrence of cholera infantum among the working-classes is mainly due to the defective ventilation of their houses and to secondary overheating of their body. It has been noticed that at times when cholera infantum is prevalent the temperature of the child is often considerably above normal, especially toward the end of the day. Meynert has shown that of 100 cases, 19.67 occur between 8 A.M. and noon, 47.54 between noon and 8 P.M., and 32.79 between 8 P.M. and 8 A.M. It is not supposed that the high temperature of the body acts directly, but indirectly, by inducing some change in the character and functional behavior of the bowel eminently favorable to the rapid growth of saprophytic germs already present, but which under other circumstances would not have multiplied.

Wheaton ⁶_{Aug. 12} states that the disease is undoubtedly due to the development of a special short rod-shaped bacillus in the intestine, the poisoning of the individual occurring by absorption of the ptomaines produced by its growth in the intestines. Carter ²⁸_{May 1} says the main practical point is that the development of intestinal bacteria depends quite as much, if not more, upon the character of the bowel and its contents than upon the accidental presence of this or that bacterium. It is not always possible to exclude the seed, but we may do much to influence the soil and thus prevent the growth of the seed.

H. Naumann ⁴_{Sept. 4} attaches great importance to the use of cheap and impure milk-sugar as a cause.

Treatment.—For the relief of diarrhoea a great variety of remedies have been vaunted from time to time, but the two which beyond all others have held their place are subnitrate of bismuth

and opium. So far as Carter's experience goes, ²⁸_{May}, vegetable astringent preparations are relatively of little service. In severe cases, daily irrigation of the large bowel is most beneficial during the height of the disorder. He uses a solution of borax in warm water (1 drachm to the pint—4 grammes to $\frac{1}{2}$ litre). Comby ¹⁵¹_{Aug.} also remarks that outside of the dietetic treatment, which is valuable from both a curative and prophylactic point of view, there are only two approved remedies,—opium and bismuth. These should always be given a faithful trial before any of the so-called "newer remedies" are used.

Charbonne ¹⁸⁸_{July} injects morphia and brandy subcutaneously in severe cases. Gwynne ²_{Feb. 18} is convinced of the good effects of calomel, Dover powders, and irrigation of the bowels with warm water containing tannic acid and acetate of lead.

Todd ²⁴_{July 1} agrees with Larrabee that beneficial effects are produced in cholera infantum by hypodermatic injections of $\frac{1}{50}$ grain (0.00130 gramme) of atropine, followed by small doses of calomel and lime-water containing a little carbolic acid. Nothing but toast-water is allowed for thirty-six hours. William Bailey, Louisville, ²²⁴_{July 1} remarks that infants bear atropine wonderfully well. He has given almost adult doses of atropine to children only a few months old, combining the drug with relatively very small doses of morphia; for instance, $\frac{1}{80}$ grain (0.0008 gramme) of morphia and $\frac{1}{150}$ grain (0.00043 gramme) of atropine, repeated two, three, or four times in twenty-four hours, making the adult dose of atropine. This controls the phenomena of cholera infantum, which would terminate life perhaps in a few hours without such treatment.

McCaw ⁶_{Aug. 19} is convinced of the efficacy of strong antiseptics, and uses the glycerin of carbolic acid in drop doses every hour, and also an hypodermatic injection of $\frac{1}{80}$ grain (0.002 gramme) morphine, repeated in two hours, if necessary. Saltmarsh ⁶_{Sept. 9} finds that $\frac{1}{4}$ -grain (0.016 gramme) doses of quinine dissolved in 2 minims (0.13 gramme) of dilute sulphuric acid, with $\frac{1}{4}$ -drop doses of tincture of opium and 5-minim (0.32 gramme) doses of tincture of catechu in 1 teaspoonful of chloroform-water, is an excellent combination for very young babies. Where this cannot be retained on the stomach, he has substituted other antiseptics for the quinine with advantage.

Bruck ²³_{Sept.} has employed benzo-naphthol in 38 cases of gastro-

enteric catarrh in children. In 12 cases the results were negative. In the remaining 26 cases the antiseptic action of the drug rendered the offensive stools almost odorless, and produced an improvement in all the symptoms. He gives ⁷¹_{June} the daily dose of benzo-naphthol for infants as follows: Up to the sixth month 0.20 to 0.50 gramme (3 to $7\frac{3}{4}$ grains); from the seventh to the twelfth month, 0.60 to 0.80 gramme ($9\frac{1}{4}$ to $12\frac{1}{2}$ grains); from one to three years, 1 gramme ($15\frac{1}{2}$ grains); from four to seven years, 1.5 grammes ($23\frac{1}{4}$ grains); from eight to fourteen years, 2 grammes (31 grains). The daily dose must be divided into five portions. The therapeutic action of the drug is generally manifested at the end of four or five days. Bruck has also noticed a diuretic action of the drug. Marcus ⁷⁶⁰_{July 22} advises the use of sulpho-carbolate of zinc.

Norin ¹⁰⁵_{July 1} lays the child on the abdomen, and flushes the bowels with a warm alkaline solution from a fountain-syringe; after this he injects $\frac{1}{2}$ to 1 drachm (2 to 4 grammes) of creolin to the pint ($\frac{1}{2}$ litre) of sterilized warm water. The bowel is flushed several times with the alkaline solution during the first twenty-four hours; if the diarrhœa has not ceased entirely at this time, the creolin injection is repeated.

Ervant ¹⁴_{Dec. 21, '92} has treated with success fifteen cases of choleraic diarrhœa by a faradic current applied to the abdomen, no other medicament being used.

Créquy ¹⁴_{Mar. 14} recommends the milk of the ass, which was given with excellent results in several cases of infantile diarrhœa. This milk, however, is expensive, difficult to procure, and readily sours. Vigier ²⁴_{Feb. 19} has for three years used humanized cows' milk for a number of infants, with the result that green diarrhœa, even during the exceptional heat of last summer in Paris, did not occur in any of them.

Seibert has previously shown ⁵⁹_{Mar. 24, '98} that higher atmospheric temperature had a very marked influence upon the frequency of gastro-intestinal disorders. Atmospheric heat itself does not cause diarrhœa, but accelerates the decomposition and fermentation of food, particularly of milk. In a recent paper ⁸⁵_{Feb.} he states that competent observers have shown that the older the milk the larger the number of bacteria, and *vice versa*. The more bacteria the warmer the weather, and the older the milk the more cases of

summer complaint. He classifies all cases of gastro-intestinal disturbance in infants under the head of milk poisoning. The name "milk poisoning" would leave no doubt in the minds of mothers as to the cause of summer diarrhœa, and would not alone do away with the old superstitious ideas concerning teething and the value of flannel stomach-bandages in hot weather, but would also constantly direct their attention to the care of milk. If the presence of poison in the stomach causes vomiting in a child, the following rules should be carried out: 1. Cleanse the stomach. This is best done in infants by stomach-washing,—a remedy now much employed all over this country, particularly in larger institutions. Older children should be allowed to drink large quantities of water, vomiting it again. The deeper the collapse in cholera infantum,—i.e., the more intense the milk poisoning,—the sooner and the more thoroughly the stomach must be cleansed. In over a thousand washings Seibert has never had an accident. 2. The small intestine cannot be reached by injections, and therefore small doses of calomel should be given to keep up the peristalsis and so remove whatever of decomposed material may be left. 3. To hurry out as much of the poisoned contents of the intestine as quick as possible the colon should be washed with large quantities of warm water two or three times a day. 4. For the next few days no milk should be given until the character of the stools shows that no milk poison is left in the intestines.

Gross¹⁶⁹_{Sept.} suggests high irrigation of fresh water, the applications of cold water with alcohol, and, if there is high initial temperature, antipyrin. In the stage of collapse he uses warm salt-water irrigations, with calomel every two hours in small doses. In chronic cases salol and tannin irrigations are of value, the stomach being washed daily with a weak solution of hydrochloric acid.

Lutori, of Rheims,²²_{Apr. 5} treats infants suffering from diarrhœa by withholding the milk by which they are being fed and giving them water only. Remy¹⁶⁸_{July 1} administers slightly alkaline and aërated water in small doses, often repeated, and suppresses all food for from ten to eighteen hours, according to the condition of the infant. Needless to observe, it is very essential to exercise great circumspection in ordering the return to the ordinary diet. If the child is collapsed when first seen, subcutaneous injections of water

must be resorted to. As soon as tolerated, the child is to receive a mixture of four-fifths water and one-fifth sterilized milk, cold bouillon, and albuminized water.

Brunon ²⁰⁸_{Aug. 1} reports great success in extreme cases of enteritis by the cold bath at a temperature of 20° C. (68° F.). Didier indorses the method, but modifies it by using a cold pack every three hours.

Huddleston ⁵⁹_{Sept. 9} states that fifty children under 2 years of age have been treated, at the New York Dispensary, by irrigation of the colon and regulation of the diet, without medicine. These fifty have not been picked cases; but, on account of lack of time, only a small proportion of those daily presenting themselves could be so treated. The majority (66 per cent.) were relieved by one irrigation; some received two and a few three irrigations. A small proportion (20 per cent.) received additional treatment. One case died on the third day after being so treated. Two quarts (litres) of 6-per-cent. salt solution are used at a temperature of 68° to 75° F. (20° to 23.9° C.). A No. 12 catheter is passed as far as possible into the colon.

Torrebadella ⁹⁹⁶_{Mar. 10} considers intestinal antisepsis the order of the day, of course including intestinal lavage. Jules Simon ⁸⁵_{Nov. 16, '92} indorses intestinal antisepsis and lavage on account of the presence of the bacterium coli commune, which, he says, is seen in the intestines of the newborn from the first nursing, and remains throughout life in the stools of all individuals, well or sick, only becoming active under certain conditions. Mackigne has shown that the bacterium is not always virulent, as, of forty-nine cases of diarrhœa, it was non-virulent in thirteen. Simon further states ⁸⁵_{Dec. 7, '92} that the medication of acute enteritis consists in the employment of opium with antiseptics, the former of which he gives to children of all ages,—1 drop of laudanum up to 17 months, increasing a drop for each year after 2 years. He gives lactic acid and salol to destroy the culture medium of bacterium coli. To destroy the virulence of the toxins he advises high injections of boric solutions containing salol, followed immediately by starch injection, which, while it is at once ejected, still soothes the rectum.

Muller, ⁸⁰_{July 16} in an article on "Enteroclysis in the Summer Diarrhœa of Children," concludes as follows: 1. That intestinal irrigation may be considered a valuable adjunct in the methodical

treatment of suitable cases of summer diarrhœa. 2. That irrigation with cold or ice-water will lower the temperature of the lower portion of the abdomen by direct refrigeration of the blood-mass, and that the procedure is indicated when high temperature, lasting for a considerable time, endangers the life by coagulating the cerebral fluid or cardiac protoplasm, or when accumulation of fæces, mucus, etc., in the bowel causes a continued irritation of its mucous membrane. 3. That the dangerous effects of the poisonous animal alkaloids are either diminished, counteracted, or dissipated by irrigations. 4. That the influence on the circulatory apparatus is shown by the change in the pulse, which becomes less frequent and stronger. 5. That systematic enteroclysis results in an amelioration of the course of the affection, and will often overcome the semiparalytic condition of different organs. 6. That the resistance which the fever offers to its reduction by this method is an index of the gravity or mildness of the case. 7. That alcoholic stimulants are of importance in the treatment of summer diarrhœas of children.

Obstruction of the Bowels in Children.—Kelly²²²_{Oct., '92} is inclined to the opinion that invaginations, twists, and other internal strangulations of the bowels of children are more common than is usually supposed, and that they are sometimes spontaneously reduced, the reduction being sometimes assisted by opiates, given usually to relieve the supposed diarrhœa, and in other cases go on to a fatal issue, attributed to dysentery, enterocolitis, or peritonitis. This goes to show not merely that an invagination below the ileo-cæcal valve may be reduced by water-pressure, but that it may be done much later than the three or four days that might be expected to produce fast adhesions; in fact, that it is the subacute invaginations which are oftenest successfully reduced by water-pressure.

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79. Sanitarian, New York.
80. Therapeutic Gazette, Detroit.
81. Virginia Medical Monthly, Richmond.
82. Medical Review, St. Louis.
83. Zeitschrift für physiologische Chemie, Strassburg.
84. Wiener medizinische Wochenschrift, Vienna.
85. Texas Courier-Record, Dallas, Tex.
86. Southern Practitioner, Nashville, Tenn.
87. Revue médico-pharmaceutique, Constantinople.
88. Prager medicinische Wochenschrift, Prague.
89. Archivos de ginecol. y pediat., Barcelona.
90. Medical Chronicle, Manchester.
91. Revue de chirurgie, Paris.
92. Revue de médecine, Paris.
93. Sanitary Journal, Glasgow.
94. Archives de neurologie, Paris.
95. Archiv für Gynækologie, Berlin.
96. Annals of Surgery, Philadelphia.
97. Mesdunarodnaja klinika, Warsaw.
98. Alienist and Neurologist, St. Louis.
99. Boston Medical and Surgical Journal.
100. Gazette des hôpitaux, Paris.
101. International Journal of Surgery, New York.
102. Kansas City Medical Record, Kansas City, Mo.
103. Medical Classics, New York.
104. Maryland Medical Journal, Baltimore.
105. Northwestern Lancet, St. Paul, Minn.
106. Omaha Clinic, Omaha, Neb.
107. Pacific Record of Medicine and Surgery, San Francisco.
108. Revue de thérapeutique médico-chirurgicale, Paris.
109. St. Louis Medical and Surgical Journal, St. Louis.
110. Texas Health Journal, Dallas, Tex.
111. União médico, Rio de Janeiro.
112. University Medical Magazine, Philadelphia.
113. Wiener medizinische Presse, Vienna.
114. Zeitschrift für klinische Medizin, Berlin.
115. Western Medical Reporter, Chicago.
116. Therapeutische Monatshefte, Berlin.
117. Southern Medical Record, Atlanta.
118. Revue mensuelle des maladies de l'enfance, Paris.
119. Philadelphia Polyclinic.
120. Nashville Journal of Medicine and Surgery, Nashville, Tenn.
121. Medical Bulletin, Philadelphia.
122. L'Union médicale du Canada, Montreal.
123. Korrespondenzblatt der aerztlichen kreis- und bezirks- Vereine im Königreich Sachsen, Leipzig.
124. Anti-Adulteration Journal, Philadelphia.
125. Hall's Journal of Health, New York.
126. Revue des sciences médicales en France et à l'étranger, Paris.
127. Gazette médicale de Nantes.
128. Medical Era, St. Louis.
129. Dosimetric Medical Review, N. Y.
130. Canada Medical Record, Montreal.
131. Bristol Medico-Chirurgical Journal, Bristol, England.
132. Archives of Gynæcology, New York.
133. Medicinisches Correspondenz-Blatt des württembergischen ärztlichen Landesvereins, Stuttgart.
134. The Doctor of Hygiene, New York.
135. The Analyst, London.

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137. *Practice*, Richmond, Va.
138. *New England Medical Monthly*, Bridgeport, Conn.
139. *Medical Standard*, Chicago.
140. *Annali de freniatria*, Torino.
141. *Herald of Health*, London.
142. *Gazette médicale de l'Algérie*, Algiers.
143. *Texas Medical Journal*, Austin, Tex.
144. *College and Clinical Record*, Philadelphia.
145. *Revista de medicina y farmacia*, Paris.
146. *Abstract of Sanitary Reports*, Washington, D. C.
147. *Occidental Medical Times*, Sacramento, Cal.
148. *Revue médico-chirurgicale des maladies des femmes*, Paris.
149. *Abstract and Index*, Weston, Vermont.
150. *Medicinische Monatsschrift*, N. Y.
151. *Epitome of Medicine*, New York.
152. *La France médicale et Paris médical*, Paris.
153. *Journal d'hygiène*, Paris.
154. *Gazette de gynécologie*, Paris.
155. *Denver Medical Times*, Denver, Col.
156. *Chemist and Druggist*, London.
157. *Brooklyn Medical Journal*, Brooklyn.
158. *Archiv für Kinderheilkunde*, Stuttgart.
159. *Sanitary News*, Chicago.
160. *Revue médicale de Toulouse*.
161. *Pittsburgh Medical Review*, Pittsburgh.
162. *Nouvelles archives d'obstétrique et de gynécologie*, Paris.
163. *Medical Missionary Record*, New York.
164. *La tribune médicale*, Paris.
165. *Journal de l'anatomie et de la physiologie normales et pathologiques de l'homme et des animaux*, Paris.
166. *Journal of Mental Science*, London.
167. *Druggists' Bulletin*, Detroit.
168. *Gazette médicale de Strasbourg*, Strasbourg.
169. *Centralblatt für die gesammte Therapie*, Vienna.
170. *Buffalo Medical and Surgical Journal*.
171. *Annales d'oculistique*, Paris.
172. *Sanitary Era*, New York.
173. *Recueil d'ophtalmologie*, Paris.
174. *Ceylon Medical Journal*, Colombo.
175. *Nice-médical*, Nice.
176. *Medical Summary*, Philadelphia.
177. *Le praticien*, Paris.
178. *Journal of Physiology*, Cambridge, England.
179. *Gaceta médica de México*.
180. *Centralblatt für die gesammte Medizin*, Leipzig.
181. *Bulletin médical du nord*, Lille.
182. *Archiv für Physiologie*, Leipzig.
183. *Sanitary Inspector*, Augusta, Me.
184. *Revue médicale de l'est*, Nancy, France.
185. *Physician and Surgeon*, Ann Arbor, Mich.
186. *Medical World*, Philadelphia.
187. *Liverpool Medico-Chirurgical Journal*, Liverpool.
188. *Journal de médecine de Bordeaux*.
189. *Gesundheit*, Frankfurt a. M.
190. *Centralblatt für praktische Augenheilkunde*, Leipzig.
191. *Journal de la santé publique*, Paris.
192. *Chicago Medical Times*.
193. *Moniteur de thérapeutique*, Paris.
194. *Bulletins et mémoires de la Société obstétricale et gynécologique*, Paris.
195. *Archives de médecine navale*, Paris.
196. *Southern Clinic*, Richmond, Va.
197. *Revue médicale de la Suisse romande*, Geneva.
198. *Progress*, Louisville, Ky.
199. *Medical Brief*, St. Louis.
200. *Sei-I-Kwai Medical Journal*, Tokyo.
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202. *Medical Age*, Detroit.
203. *La normandie médicale*, Rouen.
204. *Archiv für Ophthalmologie (Gräfe)*, Leipzig.
205. *Centralblatt für allgemeine Gesundheitspflege*, Bonn.
206. *Indian Medical Gazette*, Calcutta.
207. *Atlanta Medical and Surgical Journal*.
208. *Revue scientifique*, Paris.
209. *Pharmaceutische Zeitschrift für Russland*, St. Petersburg.
210. *Medico-Legal Journal*, New York.
211. *Lyon médical*, Lyons.

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213. Glasgow Medical Journal, Glasgow, Scotland.
214. Correspondenz-blatt für schweizer Aerzte, Basel.
215. Studies from the Biological Laboratory of Johns Hopkins University, Baltimore.
216. Albany Medical Annals, Albany, New York.
217. Beiträge zur Augenheilkunde, Hamburg.
218. Milwaukee Medical Journal, Milwaukee, Wis.
219. La clinique, Bruxelles.
220. Journal des sciences médicales de Lille.
221. Gazette médicale de Montréal.
222. Cleveland Medical Gazette, Cleveland, Ohio.
223. Bulletin de la Société des médecins et naturalistes de Jassy, Roumania.
224. American Practitioner and News, Louisville, Ky.
225. Le Poitou médical, Poitiers.
226. Archiv f. klinische Chirurgie, Berlin.
227. Leonard's Illustrated Medical Journal, Detroit.
228. La Loire médicale, Saint-Etienne.
229. Journal of Medicine and Dosimetric Therapeutics, London.
230. Gazette médicale de Picardie, Amiens.
231. Cook County Hospital Reports, Chicago.
232. Gazette médicale d'Orient, Constantinople.
233. Columbus Medical Journal, Columbus, Ohio.
234. American Lancet, Detroit.
235. China Medical Missionary Journal, Shanghai.
236. Archives de tologie et de gynécologie, Paris.
237. American Journal of Pharmacy, Philadelphia.
238. Chemical News, London.
239. Indian Medical Record, Calcutta.
240. Virchow und Hirsch's Jahresbericht über die Fortschritte der Anatomie und Physiologie, Berlin.
241. Revue de l'hypnotisme et de la psychologie physiologique, Paris.
242. Journal of Nervous and Mental Disease, New York.
243. Archives de médecine et de pharmacie militaires, Paris.
244. L'électrothérapie, Paris.
245. Journal of Cutaneous and Genito-Urinary Diseases, New York.
246. Archiv für die Gesamte Physiologie, Bonn.
247. The Journal of Pathology and Bacteriology, Edinburgh and London.
248. Journal of Morphology, Boston.
249. Archives of Ophthalmology, New York.
250. Archives de l'anthropologie criminelle et des sciences pénales, Paris.
251. Annals of Hygiene, Philadelphia.
252. Zeitschrift für Medicinalbeamte, Berlin.
253. Journal d'oculistique et de chirurgie, Paris.
254. Archiv für Augenheilkunde, Wiesbaden.
255. Jäger's Monatsblatt, Stuttgart.
256. Journal d'accouchements, Liège.
257. Canada Lancet, Toronto.
258. Medical Temperance Journal, London.
259. Clinica Chirurgica, Milan.
260. American Monthly Microscopical Journal, Washington, D. C.
261. Journal of the New York Microscopical Society, New York.
262. Annales de l'Institut Pasteur, Paris.
263. American Journal of Psychology, Worcester, Mass.
264. Nursing Record, London.
265. Centralblatt für Physiologie, Vienna.
266. Annales des maladies des organes génito-urinaires, Paris.
267. Australasian Medical Gazette, Sydney.
268. O correio médico, Lisbon.
269. Journal of the National Association of Railway Surgeons, Fort Wayne, Ind.
270. L'organe de la confraternité médicale, Bruxelles.
271. Biblioteka Vrachy, Moscow.
272. South African Medical Journal, Cape Colony, S. A.
273. Archiv für experimentelle Pathologie und Pharmacie, Leipzig.
274. Archives d'ophtalmologie, Paris.
275. The Scalpel, Calcutta.
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277. Journal of Anatomy and Physiology, London.
278. American Journal of Insanity, Utica, N. Y.
279. Medical Herald, Louisville, Ky.
280. Annales de la Société d'anatomie pathologique, Bruxelles.
281. Medical Advance, Chicago.
282. Montreal Medical Journal, Montreal.
283. Allgemeiner Wiener medizinische Zeitung, Vienna.
284. Maritime Medical News, Halifax, N. S.
285. Australian Medical Journal, Melbourne.
286. Archives internationales de laryngologie, de rhinologie et d'otologie, Paris.
287. Annales de dermatologie et de syphiligraphy, Paris.
288. La presse médicale belge, Bruxelles.
289. Archives roumaines de médecine et de chirurgie, Paris.
290. La pratique médicale, Paris.
291. Archives de médecine et de chirurgie, Paris.
292. La Médecine Scientifique, Paris.
293. Annales de la Société médico-chirurgicales, Liège.
294. Bulletin de la phthisie pulmonaire, Paris.
295. Allgemeine Zeitschrift für Psychiatrie und psychisch-gerichtliche Medizin, Berlin.
296. Les nouveaux remèdes, Paris.
297. Allgemeine medicinische Central-Zeitung, Berlin.
298. Gazette hebdomadaire des sciences médicales, Montpellier.
299. Annales de chimie et de physique, Paris.
300. Annales de physiologie, normale et pathologique, Paris.
301. Deutsche Zeitschrift für Chirurgie, Leipzig.
302. Jahrbuch für Morphologie, Leipzig.
303. L'abeille médicale, Paris.
304. La province médicale, Lyons.
305. L'année médicale de Caen.
306. Petit moniteur de la médecine, Paris.
307. L'impartialité médicale, Paris.
308. Journal de la Société de médecine et de pharmacie de la Haute-Vienne, Limoges.
309. Charité-Annalen, Berlin.
310. Jahrbuch für praktische Aerzte, Berlin.
311. Vierteljahresschrift für gerichtliche Medizin und Sanitätswesen, Berlin.
312. Monatshefte für Ohrenheilkunde, Berlin.
313. Monatshefte für Anatomie und Physiologie, Berlin.
314. Zeitschrift für Psychiatrie und gerichtliche Medizin, Berlin.
315. Archiv für Pathologie und Physiologie, Berlin.
316. Anatomischer Anzeiger, Jena.
317. Centralblatt für Gynækologie, Leipzig.
318. Anzeiger über Novitäten und Antiquar der Medizin, Leipzig.
319. Centralblatt für klinische Medizin, Leipzig.
320. Archiv für Anatomie und Physiologie, Leipzig.
321. Annales d'orthopédie, Paris.
322. Archiv für Anthropologie, Braunschweig.
323. Mittheilungen aus der ophthalmologischen Klinik in Tübingen.
324. Archiv für Hygiene, Munich.
325. American Analyst, New York.
326. Deutsches Archiv für klinische Medizin, Leipzig.
327. Journal des connaissances médicales pratiques et de pharmacologie, Paris.
328. Archiv für Ohrenheilkunde, Leipzig.
329. Journal de médecine, de chirurgie, et de pharmacologie, Paris.
330. Médecin clinicien, Paris.
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332. Oesterreichische Badezeitung, Vienna.
333. Blätter für Gesundheitspflege, Berlin.
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335. Biologisches Centralblatt, Erlangen.
336. Centralblatt für Chirurgie, Leipzig.
337. Quarterly Journal of Inebriety, Hartford, Conn.
338. Jenäische Zeitschrift für Naturwissenschaften, Jena.
339. Detroit Emergency Hospital Reports, Detroit.
340. Gazette d'ophtalmologie, Paris.
341. Medizinisch-chirurgisches Centralblatt, Vienna.
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843. Monatsblatt für öffentliche Gesundheitspflege, Braunschweig.
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 845. Annales de thérapeutique médico-chirurgicales, Paris.
 846. Annales d'hygiène publique et de médecine légale, Paris.
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 848. Montpellier médical, Montpellier, France.
 849. Bulletin de la Société de médecine de Rouen.
 850. "Hygiea." Zeitschrift für Balneologie, Climatologie, etc. Vienna.
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 855. Revista de terapéutica y farmacia, Madrid.
 856. Archives de biologie, Gand.
 857. Therapeutische Blätter, Vienna.
 858. Journal de chimie médicale, de pharmacie, de tocologie et revue de nouvelles scientifiques, nationales et étrangères, Paris.
 859. Journal de pharmacie et de chimie, Paris.
 860. Archives générales de médecine, Paris.
 861. Annales médico-psychologiques, Paris.
 862. Répertoire de pharmacie, Paris.
 863. Gazette hebdomadaire de médecine et de chirurgie, Paris.
 864. Medical Fortnightly, St. Louis.
 865. Centralblatt für die medicinischen Wissenschaften, Berlin.
 866. Jahrbuch für Kinderheilkunde und physische Erziehung, Leipzig.
 867. Irrenfreund, Heilbronn.
 868. Archiv für Psychiatrie und Nervenkrankheiten, Berlin.
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 871. Nordiskt medicinskt arkiv, Stockholm. [sala.
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873. Hospitals-tidende, Copenhagen.
 874. Bibliothek for læger, Copenhagen.
 875. Ugeskrift for læger, Copenhagen.
 876. Lo sperimentale, Florence.
 877. Gazeta médica de Granada.
 878. Gazette médicale de Liège.
 879. Braithwaite's Retrospect, New York and London.
 880. Giornale per le levatrici, Milan.
 881. Morphologisches Jahrbuch, Leipzig.
 882. Wiener Klinik, Vienna.
 883. Memorabilien, Heilbronn.
 884. Good Health, Battle Creek, Mich.
 885. Monatsschrift für Ohrenheilkunde, Berlin.
 886. Deutsche Vierteljahresschrift für öffentliche Gesundheitspflege, Braunschweig.
 887. Jahresbericht über Leistungen und Fortschritte der Ophthalmologie, Tübingen.
 888. British Guiana Medical Annual and Hospital Reports, Georgetown.
 889. Bulletin de la Société d'ethnographie, Paris.
 890. Deutsches Wochenblatt für Gesundheitspflege und Rettungswesen, Berlin.
 891. Zeitschrift für Biologie, Munich.
 892. Medizinisch-chirurgisches Rundschau, Vienna.
 893. Zeitschrift für Geburtshilfe und Gynækologie, Stuttgart.
 894. Health, Belfast, Ireland.
 895. Jahrbuch für Psychiatrie, Berlin.
 896. Archiv der Pharmacie, Berlin.
 897. Klinische Zeit- und Streitfragen, Vienna.
 898. Journal of the Anthropological Institute of Great Britain and Ireland, London.
 899. Medicinische Neuigkeiten für praktische Aerzte, Munich.
 400. Journal of the Royal Microscopical Society, London.
 401. Zeitschrift für wissenschaftliche Mikroskopie und für mikroskopische Technik, Braunschweig.
 402. Jahresbericht über Leistungen und Fortschritte der gesamten Medizin. Virchow and Hirsch, Berlin.
 403. Mind, London.
 404. Volkmann's Sammlung klinischen Vorträge, Leipzig.
 405. Zeitschrift für Heilkunde, Berlin.

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407. *Sanitary Record*, London.
408. *St. Bartholomew's Hospital Reports*, London.
409. *Archives italiennes de biologie*, Turin.
410. *Archives de physiologie normale et pathologique*, Brown - Séquard, Paris.
411. *Der aerztliche Practiker*, Berlin.
412. *St. George's Hosp. Reports*, London.
413. *L'Art médical*, Paris.
414. *Bulletin de la clinique nationale ophthalmologique de l'hospice des Quinze-Vingts*, Paris.
415. *Courrier médical*, Paris.
416. *L'électricien*, Paris.
417. *Aerztliches Vereinsblatt für Deutschland*, Leipzig.
418. *St. Thomas's Hospital Reports*, London.
419. *Bulletins et mémoires de la Société de chirurgie*, Paris.
420. *Bulletins et mémoires de la Société médicale des hôpitaux*, Paris.
421. *Bulletins et mémoires de la Société française d'otologie et de laryngologie*, Paris.
422. *Shurnal akuscherstwa i shenskich bolesnej*, St. Petersburg.
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424. *Clinical Reporter*, Chicago.
425. *American Annals of the Deaf*, Washington, D. C.
426. *Ohio Medical Journal*, Cincinnati.
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428. *Guy's Hospital Reports*, London.
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430. *Kansas Medical Catalogue*, Fort Scott, Kansas.
431. *Journal du magnétisme*, Paris.
432. *Journal of Comparative Medicine and Veterinary Archives*, Philadelphia.
433. *Concours médical*, Paris.
434. *Gazette des Eaux*, Paris.
435. *Revue clinique d'oculistique*, Paris.
436. *Journal of Heredity*, Chicago.
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438. *Gazette française de médecine et de pharmacie*, Paris.
439. *Revue obstétricale et gynécologique*, Paris.
440. *The Microscope*, Trenton, N. J.
441. *Revista de sanidad militar*, Madrid.
442. *Gazette médicale et pharmaceutique de France*.
443. *Revue d'hygiène et de police sanitaire*, Paris.
444. *Journal of Surgery, Gynecology, and Obstetrics*, Atlanta.
445. *Zeitschrift für Schulgesundheitspflege*, Hamburg.
446. *Revue speciale de l'antisepsie médicale et chirurgicale*, Paris.
447. *Revue d'anthropologie*, Paris.
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449. *Archives d'anatomie pathologique*, Paris.
450. *Bulletin de la Société clinique*, Paris.
451. *International Medical Magazine*, Philadelphia.
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454. *Archives médicales belges*, Bruxelles.
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456. *Revista de ciencias médicas*, Barcelona.
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463. *Annales de obstetricia ginecopatía y pediatria*, Madrid.
464. *Revista di ostetricia e ginecologia*, Torino.
465. *Der Thierarzt*, Wetzlar.
466. *Archivo di ortopedia*, Milan.
467. *Bulletin de la Société royale de pharmacie de Bruxelles*.
468. *Revista d'igiene practica e sperimentale*, Naples.
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471. *Bulletins de la Société de médecine pratique, Paris.*
472. *Bollettino delle scienze mediche, Bologna.*
473. *American Druggist, New York.*
474. *Cronaca del manicomio di Ancona.*
475. *Berliner Klinik, Berlin.*
476. *Dominion Medical Monthly, Toronto.*
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478. *Bulletin du service de santé militaire, Paris.*
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480. *Annali universali di medicina e chirurgia, Milan.*
481. *Boletin di medicina y farmacia, Barcelona.*
482. *Canadian Pharmaceutical Journal, Toronto.*
483. *The Climatologist, Philadelphia.*
484. *Bollettino della reale Accademia medica di Roma.*
485. *Archivio di patologia infantil, Naples.*
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487. *Correspondenzblatt des allgemeinen mecklenburgischen Aerztevereins, Rostock.*
488. *Archiv for Pharmaci og technisk Chemi, med deres Grundvidenskab, Copenhagen.*
489. *El Dictamen, Madrid.*
490. *Atti e rendiconti della Accademia medico-chirurgica di Perugia.*
491. *Journal de micrographie, Paris.*
492. *Baltimore Medical and Surgical Record.*
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494. *Gaceta médica catalana, Barcelona.*
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496. *Correspondenzblätter des allgemeinen aerztlichen Vereins von Thüringen, Leipzig.*
497. *Il Morgagni, Milan.*
498. *Finska Läkare-sällskapets handlingar, Helsingfors.*
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500. *Boletin de la Revista de medicina y cirugía prácticas, Madrid.*
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502. *Der Naturarzt, Dresden.*
503. *El siglo médico, Madrid.*
504. *Journal of Hydrotherapy, London.*
505. *Gazzetta degli ospitali, Naples.*
506. *Journal of the Arkansas Medical Society, Little Rock.*
507. *Giornale italiano delle malattie veneree e della pelle, Milan.*
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509. *Ejenedêlnaya klinicheskaya Gazeta.*
510. *Alma Mater, Aberdeen, Scotland.*
511. *Blätter für Kriegsverwaltung, Berlin.*
512. *Gyógyászat, Budapest.*
513. *Il progresso medico, Naples.*
514. *Ohio Journal of Dental Science, Toledo.*
515. *Gazzetta medica di Roma.*
516. *La independencia médica, Barcelona.*
517. *Vaccination Enquirer and Health Review, London.*
518. *Bollettino della Commissione speciale d'igiene del municipio di Roma.*
519. *Journal of Materia Medica, New Lebanon, N. Y.*
520. *Gazeta lekarska, Warsaw.*
521. *Journal of Comparative Pathology and Therapeutics, Edinburgh.*
522. *Bollettino medico cremonese, Cremona.*
523. *Kinesithérapie, Paris.*
524. *La médecine contemporaine, Paris.*
525. *Zeitschrift der Tokio medicinischen Gesellschaft, Tokyo.*
526. *Giornale della reale Società italiana d'igiene, Milan.*
527. *Bulletins et mémoires de la Société de thérapeutique, Paris.*
528. *L'écho médical, Toulouse.*
529. *Bulletins et mémoires de la Société française d'ophtalmologie, Paris.*
530. *Meditzinskoje Obozrenije, Warsaw.*
531. *Giornale medico del reale esercito e della reale marina, Roma.*
532. *Les nouveaux-nés, Paris.*
533. *Medical and Professional Review, London.*
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537. *Giornale internazionale delle scienze mediche*, Naples.
538. *Le Scalpel*, Liège.
539. *Bulletins de la Société anatomique de Nantes*.
540. *L'Osservatore*, Torino.
541. *Aerztliche Mittheilungen aus Baden*, Karlsruhe.
542. *La crónica médica*, Lima.
543. *Bulletin de la Société anatomo-clinique de Lille*.
544. *La correspondencia médica*, Madrid.
545. *Ciencia médico-escolástica*, Barcelona.
546. *Cincinnati Medical Journal*, Cincinnati.
547. *Massachusetts Medical Journal*, Boston.
548. *Clinical Register*, Knoxville, Tenn.
549. *A medicina contemporanea*, Lisbon.
550. *Cronaca del manicomio di Siena*.
551. *Medycyna*, Warsaw.
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554. *Ottawa Medical World*.
555. *Meditzinisko Spisanië*, Budapest.
556. *National Druggist*.
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581. *Pharmaceutical Record*, London.
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583. *Nederlandsch Tijdschrift voor Geneeskunde*, Amsterdam.
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589. *Riforma medica*, Naples.
590. *Wjestnik klinitscheskoj i ssudebnoj psichiatirii i neiropatologii*, St. Petersburg.
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739. *Giornale della reale Accademia di medicina, Torino.*
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774. *Boletin de medicina y cirugía, Madrid.*
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784. *Revista médica de México.*
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812. Biologiska föreningens förhandlingar, Stockholm.
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814. American Medico-Surgical Bulletin, New York.
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823. Archivio della riforma medica, Naples.
824. Sheffield Medical Journal, Sheffield, England.
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826. Notes on New Remedies, New York.
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828. Untersuchungen aus dem physiologischen Institut der Universität, Halle.
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997. Gazzetta Medica di Torino.
998. Medical and Surgical Observer, Jackson, Tenn.
999. Zeitschrift für Orthopädische Chirurgie, Würzburg.
1000. Oesterr. Zeitschrift für Pharmacie.
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1002. Giornale speciale di Farmacia Sperimentale e chimica clinica, Naples.
1003. Amer. Gynæcological Jour., Toledo.
1004. Archives d'obstétrique et de gynécologie, Paris.
1005. Deutsche Zeitschrift für Nervenheilkunde, Heidelberg.
1006. Journal of Comparative Neurology, Granville, Ohio.
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1010. Climatoterapia, Barcelona.
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1012. Therapeutic Review, New York.
1013. International Clinica, Philadelphia.
1014. Boletin de sanidad militar, Buenos Ayres.
1015. Annales d'hypnologie et de psychiatrie, Paris.
1016. Anales del departamento nacional de higiene, Buenos Ayres.
1017. American Dermatologist, Indianapolis.
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1019. Bulletin of Pharmacy, Detroit.
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1022. Gl' Incurabili, Giornale di Clinica e di Terapia, Naples.
1023. L'Ingegnaria sanitaria, Torino.
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1029. Eurêka. Revue scientifique et industrielle, Paris.
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1031. New York Medical Examiner.
1032. National Popular Review, San Diego, Cal.
1033. The Prescription, Danbury, Conn.
1034. Revue chirurgicale, Paris.
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1036. Wochenschrift für Chemie und Pharmacie.
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1039. Annali di nevrologia, Naples.

1040. Internationale Beiträge zur wissenschaftliche Medizin.
1041. Tidskrift f. Sundhedspleje.
1042. Annales de chirurgie, Paris.
1043. Archives provinciales de chirurgie.
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1054. New Albany Medical Herald, New Albany, Ind.
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1057. Journal d'hygiène populaire, Montreal.
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1061. Archives d'électricité médicale, Bordeaux.
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1064. The Corpuscle, Chicago.
1065. Florida Medical and Surgical Reporter.
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1082. Budapest Hygienischer Zeitung.
1083. Revue médicale de la Franche-Comté.
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1090. Revue Neurologique, Paris.
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1092. Indian Medico-Chirurgical Review, Bombay.
1093. Medical Magazine, London.
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1095. La Puglia Medica, Bari.
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1097. Archivio internazionale delle specialita med. chirurgiche, Naples.
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1101. Archives des Sciences biologiques, St. Petersburg.
1102. Gazzetta Medica di Pavia.
1103. Dental Practitioner, Buffalo.
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1105. Archivio italiano di otologia, rino-logia, e laringologia, Turin.
1106. La Médecine Nouvelle, Paris.
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1111. Bolétin del Manicomio de San Baudilio de Llobregat, Barcelona.
1112. Electricidad Médica, Barcelona.
1113. Gazzetta medica delle puglie, Bari, Italy.
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2021. Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-minded Persons.
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2024. Transactions of the Texas State Medical Association.
2025. Pan-American Medical Congress. Washington.
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2027. Inaugural Dissertation. Upsala.
2028. "On Guard."
2029. Spottiswoode & Co., London, Queen's printers.
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2035. Moleschott's Untersuchungen.
2036. Transactions of the Clinical Society. London.
2037. Report on Periods of Incubation and Contagiousness in Certain Infectious Diseases.
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2043. Agricultural Distress and Trade Depression.
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2115. Report to the Metropolitan Asylums Board. London.

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2136. Transactions Kings County (N. Y.) Medical Association.
2137. Transactions American Pædiatric Society.
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2155. Ziemssen's Handbook.
2156. American Naturalist.
2157. Insect Life.
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